

FCC Test Report

Report No.: RF150624E07

FCC ID: PY315300321

Test Model: WAC730

Received Date: June 24, 2015

Test Date: Aug. 06 to 12, 2015

Issued Date: Aug. 20, 2015

Applicant: NETGEAR, Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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R.O.C.



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A D T

Release Control Record

Issue No.	Description	Date Issued
RF150624E07	Original release.	Aug. 20, 2015



A D T

1 Certificate of Conformity

Product: ProSAFE Dual Band Wireless AC Access Point

Brand: NETGEAR

Test Model: WAC730

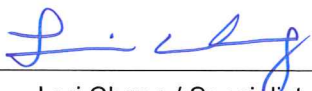
Sample Status: MASS-PRODUCTION

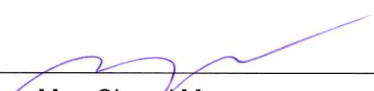
Applicant: NETGEAR, Inc.

Test Date: Aug. 06 to 12, 2015

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10: 2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : , **Date:** Aug. 20, 2015
Lori Chung / Specialist

Approved by : , **Date:** Aug. 20, 2015
May Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (SECTION 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -7.06dB at 0.29844MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.1dB at 2390.00MHz & 2483.50MHz.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	Pass	Meet the requirement of limit.
15.247(b)	Conducted power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is R-SMA and i-pex not a standard connector.

NOTE: The EUT was operating in 2400 ~ 2483.5MHz, 5150~5250MHz and 5725~5850MHz frequencies band. This report was recorded the RF parameters including 2400 ~ 2483.5MHz. For the 5150~5250MHz and 5725~5850MHz RF parameters was recorded in another test report.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expended Uncertainty (k=2) ($\pm$)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.86 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.37 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.65 dB
	6GHz ~ 18GHz	3.88 dB
	18GHz ~ 40GHz	4.11 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	ProSAFE Dual Band Wireless AC Access Point
Brand	NETGEAR
Test Model	WAC730
Status of EUT	MASS-PRODUCTION
Power Supply Rating	12Vdc from power adapter or 55Vdc from POE
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a: up to 54Mbps 802.11n: up to 450Mbps 802.11ac: up to 1300Mbps
Operating Frequency	For 15.407 5.18 ~ 5.24GHz, 5.745 ~ 5.825GHz
	For 15.247 2.412 ~ 2.462GHz
Number of Channel	For 15.407 9 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 4 for 802.11n (HT40), 802.11ac (VHT40) 2 for 802.11ac (VHT80)
	For 15.247 11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Output Power	For 15.407 5.18~5.24 GHz CDD Mode: 802.11a: 54.228mW 802.11ac (VHT20): 54.834mW 802.11ac (VHT40): 92.996mW 802.11ac (VHT80): 42.972mW Beamforming Mode: 802.11ac (VHT20): 32.022mW 802.11ac (VHT40): 49.089mW 802.11ac (VHT80): 38.3mW 5.745~5.825 GHz CDD Mode: 802.11a: 173.751mW Beamforming Mode: 802.11ac (VHT20): 143.114mW 802.11ac (VHT40): 131.378mW 802.11ac (VHT80): 53.012mW
	For 15.247 CDD Mode: 802.11b: 484.435mW 802.11g: 459.676mW 802.11n (HT20): 456.631mW 802.11n (HT40): 120.047mW Beamforming Mode: 802.11n (HT20): 386.973mW 802.11n (HT40): 120.047mW

Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	NA

Note:

- 2.4GHz and 5GHz technology can transmit at same time.
- The antennas provided to the EUT, please refer to the following table:

External Antenna									
PCB Chain No.	Brand	Model	Antenna Gain (dBi) (Excelude cable loss)	Cable Loss (dB)	Net Gain (dBi)	Cable Length (mm)	Frequency range (GHz to GHz)	Antenna Type	Connector Type
Chain (0) (Left)	Master Wave Tech.	98364PRSX004	0.8	0.8	0	180	2.4~2.4835	Dipole	R-SMA
			1.5	1.5	0		5.15~5.25		
			1.6	1.5	0.1		5.25~5.35		
			0.7	1.5	-0.8		5.47~5.725		
			0.5	1.5	-1		5.725~5.85		
Chain (1) (Mid)	Master Wave Tech.	98364PRSX004	0.8	0.5	0.3	60	2.4~2.4835	Dipole	R-SMA
			1.5	0.9	0.6		5.15~5.25		
			1.6	0.9	0.7		5.25~5.35		
			0.7	0.9	-0.2		5.47~5.725		
			0.5	0.9	-0.4		5.725~5.85		
Chain (2) (Right)	Master Wave Tech.	98364PRSX004	0.8	0.9	-0.1	190	2.4~2.4835	Dipole	R-SMA
			1.4	1.7	-0.3		5.15~5.25		
			1.6	1.7	-0.1		5.25~5.35		
			0.7	1.7	-1		5.47~5.725		
			0.7	1.7	-1		5.725~5.85		
Internal Antenna									
PCB Chain No.	Brand	Model	Antenna Gain (dBi)		Frequency range (GHz to GHz)		Antenna Type	Connector Type	
Chain (0)	NA	NA	5		2.4~2.4835		PIFA	i-pex(MHF)	
			6		5.15~5.25				
			6		5.25~5.35				
			6		5.47~5.725				
			6		5.725~5.85				
Chain (1)	NA	NA	5		2.4~2.4835		PIFA	i-pex(MHF)	
			6		5.15~5.25				
			6		5.25~5.35				
			6		5.47~5.725				
			6		5.725~5.85				
Chain (2)	NA	NA	5		2.4~2.4835		PIFA	i-pex(MHF)	
			6		5.15~5.25				
			6		5.25~5.35				
			6		5.47~5.725				
			6		5.725~5.85				

3. The EUT must be supplied with POE or a power adapter and following two different models could be chosen as following table:

Adapter				
No	Brand Name	Model No.	P/N	Spec.
1	NETGEAR	2ABL030F 1	332-10758-01	Input: 100-120V, 1.0A, 50/60Hz Output: 12V, 2.5A DC output cable: 1.8m, unshielded
2	NETGEAR	ADS-40FPA-12	332-10759-01	Input: 100-120V, 1.0A, 60Hz Output: 12V, 2.5A DC output cable: 1.8m, unshielded

POE (test only, not for sale)

No	Brand Name	Model No.	Spec.
1	Microsemi Corp.	PD-9001GR/AC	Input: 100-240V, 0.8A, 50/60Hz Output: 55V, 0.6A

Note: From the above adapters & POE, the radiated emission worse case was found in adapter 2. Therefore only the test data of the mode was recorded in this report.

4. The EUT incorporates a MIMO function with beamforming.(Except for 802.11a/b/g)

2.4GHz Band			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11b	1 ~ 11Mbps	3TX	3RX
802.11g	6 ~ 54Mbps	3TX	3RX
802.11n (HT20)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11n (HT40)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
5GHz Band			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11a	6 ~ 54Mbps	3TX	3RX
802.11n (HT20)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11n (HT40)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11ac (VHT20)	MCS 0~8, Nss=1	3TX	3RX
	MCS 0~8, Nss=2	3TX	3RX
	MCS 0~9, Nss=3	3TX	3RX
802.11ac (VHT40)	MCS 0~9, Nss=1	3TX	3RX
	MCS 0~9, Nss=2	3TX	3RX
	MCS 0~9, Nss=3	3TX	3RX
802.11ac (VHT80)	MCS 0~9, Nss=1	3TX	3RX
	MCS 0~9, Nss=2	3TX	3RX
	MCS 0~9, Nss=3	3TX	3RX

The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

5. The emission of the simultaneous operation (2.4GHz & 5GHz) has been evaluated and no non-compliance was found.
6. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

11 channels are provided for 802.11b, 802.11g, 802.11n (HT20):

Channel	Frequency	Channel	Frequency
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

7 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
1	√	√	√	√	With adapter 2 + Internal antenna
2	√	√	-	-	With adapter 2 + External antenna
3	-	-	√	-	With adapter 1 + Internal antenna
4	-	-	√	-	With POE + Internal antenna

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

NOTE:

1. The EUT had been pre-tested on the positioned of each 2 axis. The worst case was found when positioned on **Y-plane**

2. “-” means no effect.

Radiated Emission Test (Above 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Radiated Emission Test (Below 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	6	DSSS	DBPSK	1

Power Line Conducted Emission Test:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	6	DSSS	DBPSK	1

Antenna Port Conducted Measurement:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

CDD Mode					
For Conducted Output Power / Power Spectral Density / 6dB Bandwidth Measurement					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
Beamforming Mode					
For Conducted Output Power Measurement					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	22deg. C, 68%RH	120Vac, 60Hz	Andy Ho
RE<1G	25deg. C, 69%RH	120Vac, 60Hz	Weiwei Lo
PLC	28deg. C, 59%RH	120Vac, 60Hz	Wythe Lin
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

3.3 Duty Cycle of Test Signal

If duty cycle of test signal is $\geq 98\%$, duty factor is not required.

If duty cycle of test signal is $< 98\%$, duty factor shall be considered.

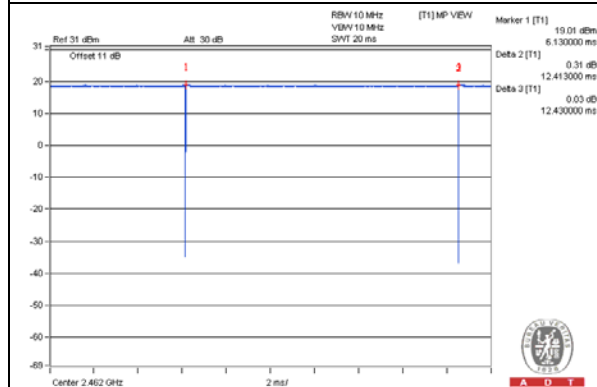
802.11b: Duty cycle = 12.413 ms/12.43 ms = 0.999

802.11g: Duty cycle = 2.062 ms/2.089 ms = 0.987

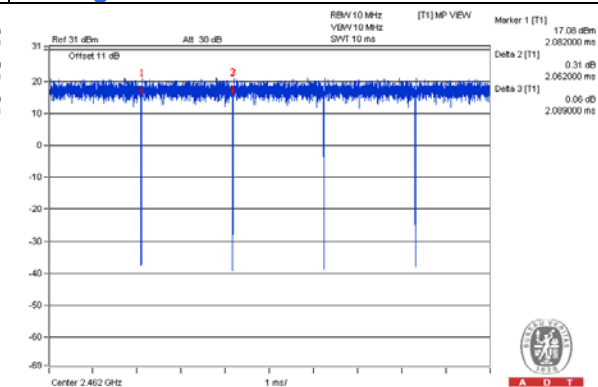
802.11n (HT20): Duty cycle = 1.918 ms/1.938 ms = 0.99

802.11n (HT40): Duty cycle = 0.942 ms/0.974 ms = 0.967, Duty factor = $10 * \log(1/0.967) = 0.15$

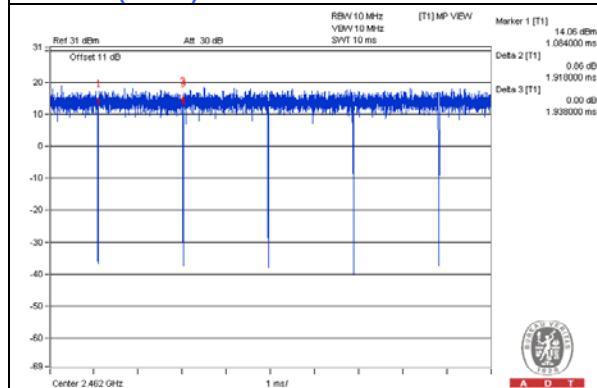
802.11b



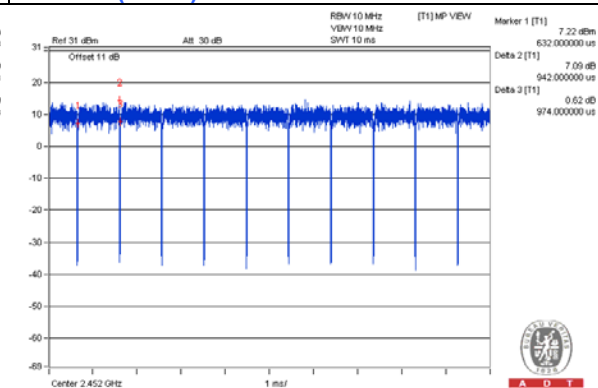
802.11g



802.11n (HT20)



802.11n (HT40)



3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

With adapter test Mode						
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	NOTEBOOK COMPUTER	DELL	PP32LA	DSL32S	FCC DoC	Provided by Lab

Note:

1. All power cords of the above support units are non-shielded (1.8m).

With adapter test Mode						
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC	1	1.8	No	0	Supplied by Client
2.	RJ-45	1	10	No	0	Provided by Lab
3.	RJ-45 to RS232	1	1	No	0	Provided by Lab

With POE test Mode						
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	NOTEBOOK COMPUTER	DELL	E5430	HYV4VY1	FCC DoC	Provided by Lab
B.	POE	Microsemi Corp.	PD-9001GR/AC	NA	NA	Supplied by Client

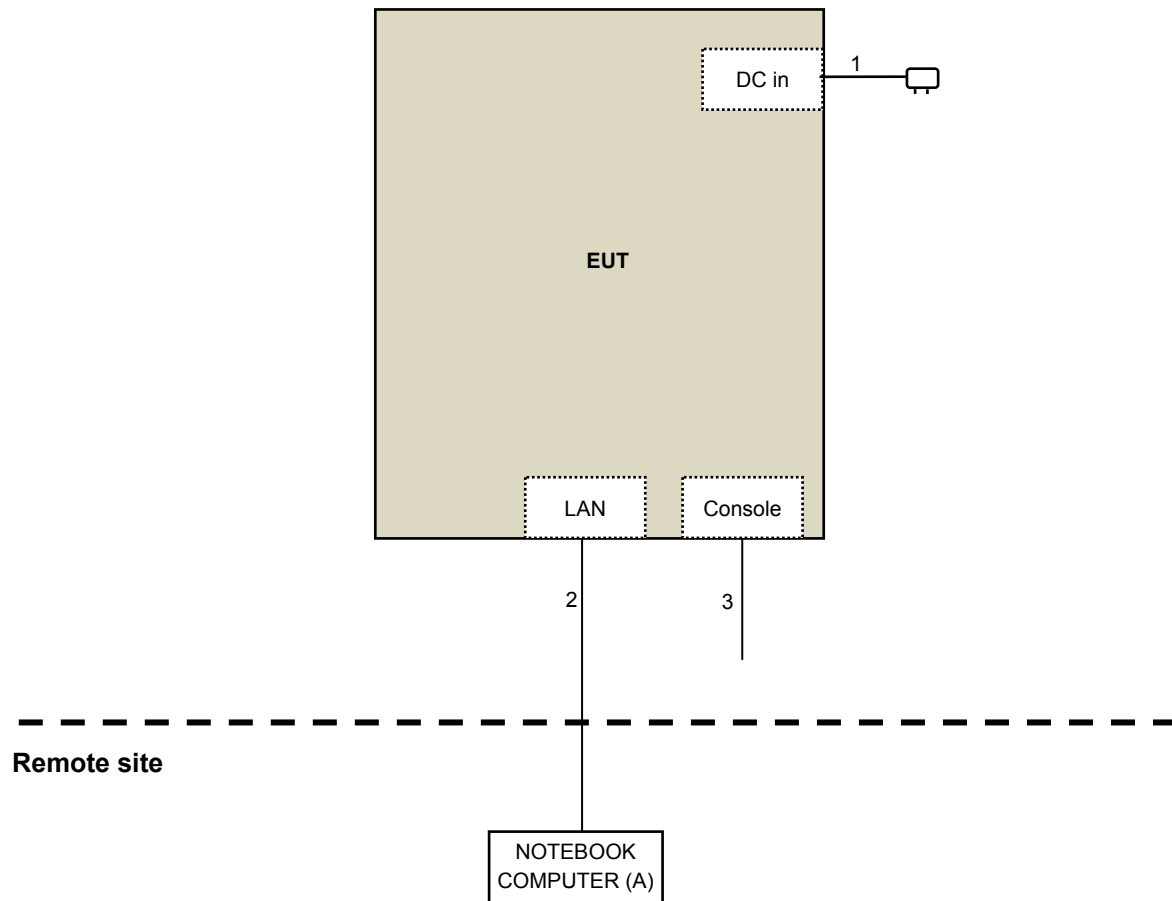
Note:

1. All power cords of the above support units are non-shielded (1.8m).

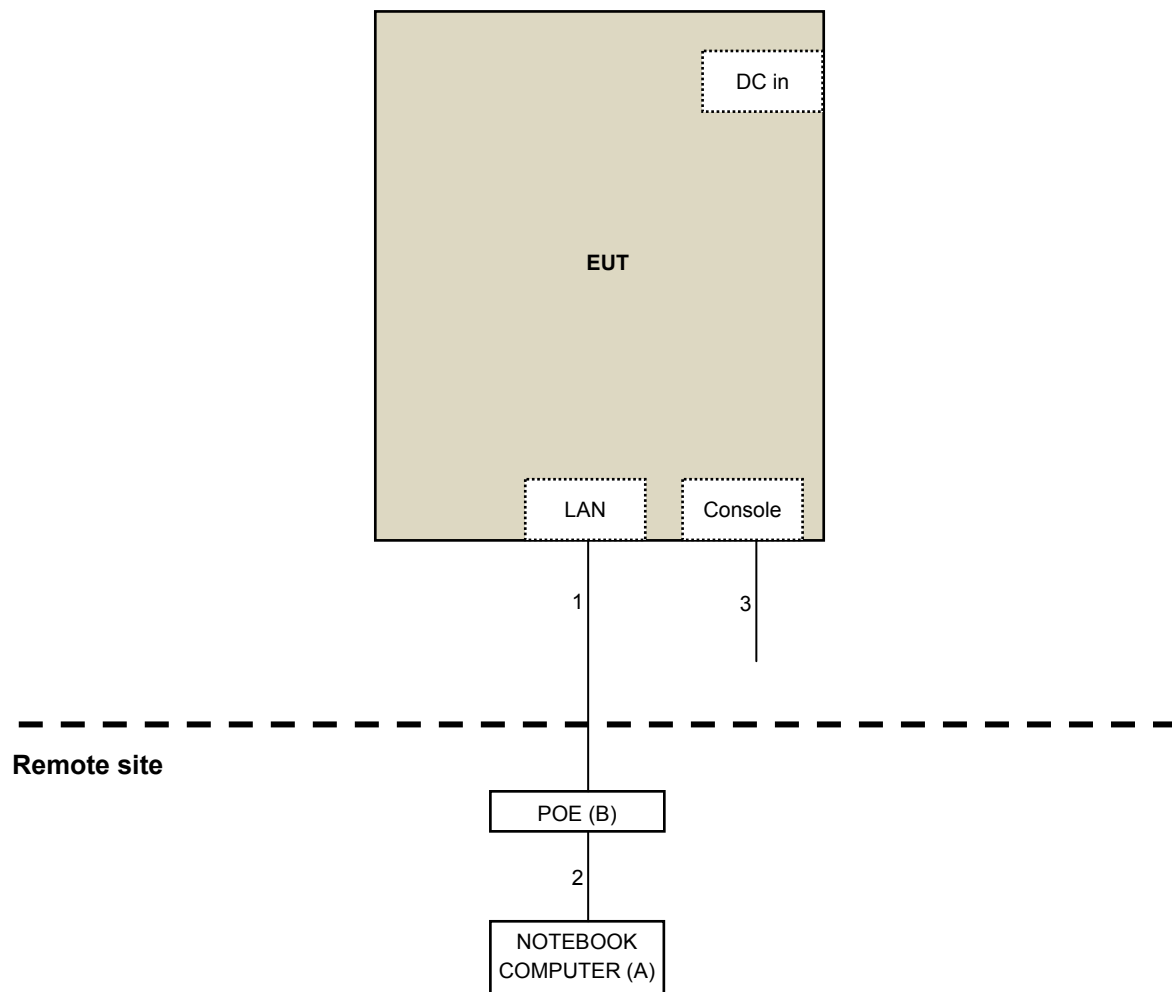
With POE test Mode						
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ-45	3	10	No	0	Provided by Lab
2.	RJ-45	1	3	No	0	Provided by Lab
3.	RJ-45 to RS232	1	1	No	0	Provided by Lab

3.4.1 Configuration of System under Test

With adapter test Mode:



With POE test Mode:



3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.247)

558074 D01 DTS Meas Guidance v03r03

662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210105	July 24, 2015	July 23, 2016
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Feb. 06, 2015	Feb. 05, 2016
RF Cable	8D-FB	CHGCAB-001 -1 CHGCAB-001 -2	Oct. 04, 2014	Oct. 03, 2015
	RF-141	CHGCAB-004	Oct. 04, 2014	Oct. 03, 2015
Horn_Antenna AISI	AIH.8018	000032009111 0	Feb. 09, 2015	Feb. 08, 2016
Pre-Amplifier Agilent	8449B	3008A02578	June 23, 2015	June 22, 2016
RF Cable	NA	131205 131216 131217 SNMY23684/ 4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	June 26, 2015	June 25, 2016
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Dec. 12, 2014	Dec. 11, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Feb. 05, 2015	Feb. 04, 2016
RF Cable	NA	329751/4 RF104-204	Dec. 11, 2014	Dec. 10, 2015
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA
Power Meter Anritsu	ML2495A	1014008	Apr. 28, 2015	Apr. 27, 2016
Power Sensor Anritsu	MA2411B	0917122	Apr. 28, 2015	Apr. 27, 2016
SPECTRUM ANALYZER R&S	FSP 40	100060	May 08, 2015	May 07, 2016

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. G.
3. The FCC Site Registration No. is 966073.
4. The VCCI Site Registration No. is G-137.
5. The CANADA Site Registration No. is IC 7450H-2.
6. Tested Date: Aug. 10 to 12, 2015

4.1.3 Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

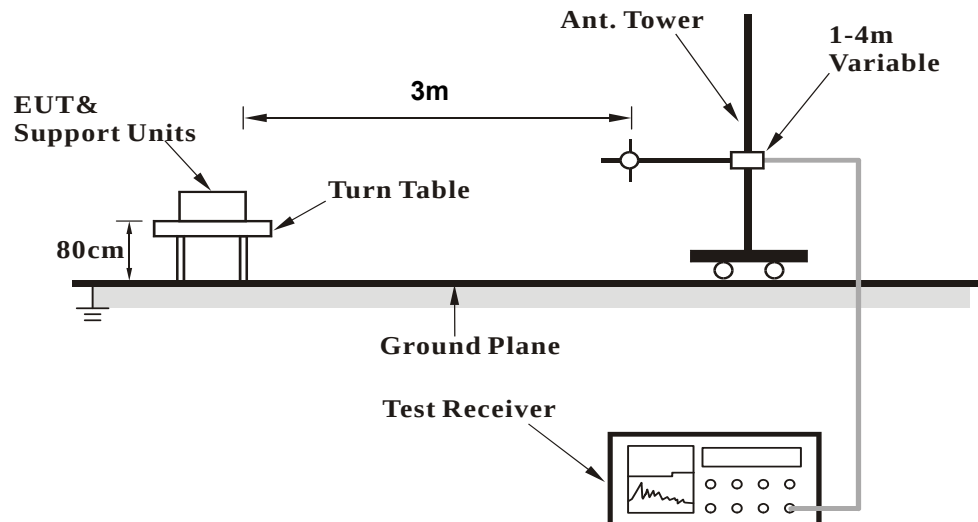
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor ($10 \log(1/\text{duty cycle})$).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

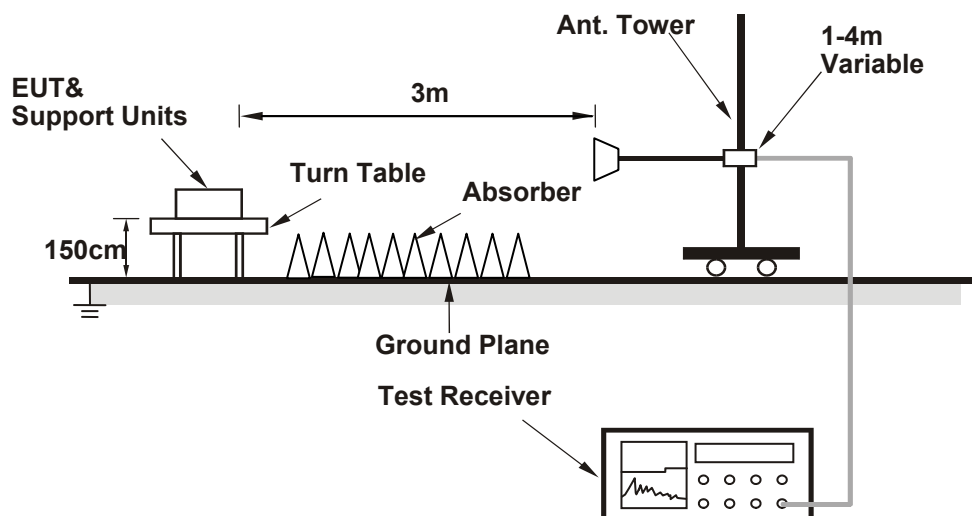
No deviation.

4.1.5 Test Setup

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

1. Connect the EUT with the support unit A (NOTEBOOK COMPUTER) which is placed on remote site.
2. Controlling software (Mtool.exe V1.0.0.10) has been activated to set the EUT on specific status.

4.1.7 Test Results (Mode 1)

Above 1GHz Data

CDD Mode

802.11b

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.6 PK	74.0	-10.4	2.36 H	68	63.72	-0.12
2	2390.00	53.8 AV	54.0	-0.2	2.36 H	68	53.92	-0.12
3	*2412.00	115.1 PK			2.36 H	68	115.13	-0.03
4	*2412.00	112.1 AV			2.36 H	68	112.13	-0.03
5	4824.00	48.7 PK	74.0	-25.3	1.51 H	360	39.68	9.02
6	4824.00	44.5 AV	54.0	-9.5	1.51 H	360	35.48	9.02
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.1 PK	74.0	-12.9	1.06 V	336	61.22	-0.12
2	2390.00	48.3 AV	54.0	-5.7	1.06 V	336	48.42	-0.12
3	*2412.00	109.8 PK			1.06 V	336	109.83	-0.03
4	*2412.00	106.8 AV			1.06 V	336	106.83	-0.03
5	4824.00	52.6 PK	74.0	-21.4	2.08 V	335	43.58	9.02
6	4824.00	49.4 AV	54.0	-4.6	2.08 V	335	40.38	9.02

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	118.1 PK			2.25 H	72	118.02	0.08
2	*2437.00	115.5 AV			2.25 H	72	115.42	0.08
3	4874.00	48.9 PK	74.0	-25.1	1.46 H	360	39.78	9.12
4	4874.00	44.6 AV	54.0	-9.4	1.46 H	360	35.48	9.12
5	7311.00	49.5 PK	74.0	-24.5	1.43 H	341	32.99	16.51
6	7311.00	35.8 AV	54.0	-18.2	1.43 H	341	19.29	16.51
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	112.9 PK			1.12 V	347	112.82	0.08
2	*2437.00	110.2 AV			1.12 V	347	110.12	0.08
3	4874.00	52.8 PK	74.0	-21.2	2.04 V	328	43.68	9.12
4	4874.00	49.7 AV	54.0	-4.3	2.04 V	328	40.58	9.12
5	7311.00	49.9 PK	74.0	-24.1	1.83 V	358	33.39	16.51
6	7311.00	38.1 AV	54.0	-15.9	1.83 V	358	21.59	16.51

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.1 PK			2.11 H	71	113.89	0.21
2	*2462.00	111.0 AV			2.11 H	71	110.79	0.21
3	2483.50	63.7 PK	74.0	-10.3	2.11 H	71	63.39	0.31
4	2483.50	53.9 AV	54.0	-0.1	2.11 H	71	53.59	0.31
5	4924.00	48.9 PK	74.0	-25.1	1.50 H	360	39.63	9.27
6	4924.00	44.3 AV	54.0	-9.7	1.50 H	360	35.03	9.27
7	7386.00	49.3 PK	74.0	-24.7	1.43 H	328	32.68	16.62
8	7386.00	35.7 AV	54.0	-18.3	1.43 H	328	19.08	16.62
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.9 PK			1.14 V	355	108.69	0.21
2	*2462.00	105.7 AV			1.14 V	355	105.49	0.21
3	4924.00	53.5 PK	74.0	-20.5	2.02 V	343	44.23	9.27
4	4924.00	50.2 AV	54.0	-3.8	2.02 V	343	40.93	9.27
5	7386.00	50.3 PK	74.0	-23.7	1.81 V	360	33.68	16.62
6	7386.00	38.4 AV	54.0	-15.6	1.81 V	360	21.78	16.62

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	71.8 PK	74.0	-2.2	1.75 H	62	71.92	-0.12
2	2390.00	53.8 AV	54.0	-0.2	1.75 H	62	53.92	-0.12
3	*2412.00	115.3 PK			1.75 H	62	115.33	-0.03
4	*2412.00	104.4 AV			1.75 H	62	104.43	-0.03
5	4824.00	48.9 PK	74.0	-25.1	1.55 H	360	39.88	9.02
6	4824.00	44.4 AV	54.0	-9.6	1.55 H	360	35.38	9.02
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.1 PK	74.0	-4.9	2.02 V	332	69.22	-0.12
2	2390.00	48.2 AV	54.0	-5.8	2.02 V	332	48.32	-0.12
3	*2412.00	109.7 PK			2.02 V	332	109.73	-0.03
4	*2412.00	99.1 AV			2.02 V	332	99.13	-0.03
5	4824.00	53.3 PK	74.0	-20.7	1.93 V	332	44.28	9.02
6	4824.00	50.1 AV	54.0	-3.9	1.93 V	332	41.08	9.02

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.1 PK	74.0	-7.9	1.84 H	61	66.22	-0.12
2	2390.00	49.2 AV	54.0	-4.8	1.84 H	61	49.32	-0.12
3	*2437.00	121.5 PK			1.84 H	61	121.42	0.08
4	*2437.00	110.8 AV			1.84 H	61	110.72	0.08
5	2483.50	68.0 PK	74.0	-6.0	1.84 H	61	67.69	0.31
6	2483.50	51.0 AV	54.0	-3.0	1.84 H	61	50.69	0.31
7	4874.00	48.8 PK	74.0	-25.2	1.44 H	358	39.68	9.12
8	4874.00	43.9 AV	54.0	-10.1	1.44 H	358	34.78	9.12
9	7311.00	48.9 PK	74.0	-25.1	1.47 H	319	32.39	16.51
10	7311.00	35.6 AV	54.0	-18.4	1.47 H	319	19.09	16.51

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.8 PK	74.0	-13.2	1.96 V	321	60.92	-0.12
2	2390.00	43.6 AV	54.0	-10.4	1.96 V	321	43.72	-0.12
3	*2437.00	116.2 PK			1.96 V	321	116.12	0.08
4	*2437.00	105.2 AV			1.96 V	321	105.12	0.08
5	2483.50	62.7 PK	74.0	-11.3	1.96 V	321	62.39	0.31
6	2483.50	45.4 AV	54.0	-8.6	1.96 V	321	45.09	0.31
7	4874.00	54.0 PK	74.0	-20.0	1.97 V	345	44.88	9.12
8	4874.00	50.6 AV	54.0	-3.4	1.97 V	345	41.48	9.12
9	7311.00	49.9 PK	74.0	-24.1	1.78 V	355	33.39	16.51
10	7311.00	38.3 AV	54.0	-15.7	1.78 V	355	21.79	16.51

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	116.5 PK			1.80 H	58	116.29	0.21
2	*2462.00	105.7 AV			1.80 H	58	105.49	0.21
3	2483.50	73.7 PK	74.0	-0.3	1.80 H	58	73.39	0.31
4	2483.50	53.8 AV	54.0	-0.2	1.80 H	58	53.49	0.31
5	4924.00	48.8 PK	74.0	-25.2	1.45 H	353	39.53	9.27
6	4924.00	44.1 AV	54.0	-9.9	1.45 H	353	34.83	9.27
7	7386.00	49.1 PK	74.0	-24.9	1.52 H	330	32.48	16.62
8	7386.00	35.8 AV	54.0	-18.2	1.52 H	330	19.18	16.62
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.9 PK			1.97 V	314	110.69	0.21
2	*2462.00	100.1 AV			1.97 V	314	99.89	0.21
3	2483.50	68.4 PK	74.0	-5.6	1.97 V	314	68.09	0.31
4	2483.50	48.2 AV	54.0	-5.8	1.97 V	314	47.89	0.31
5	4924.00	54.5 PK	74.0	-19.5	1.94 V	337	45.23	9.27
6	4924.00	50.8 AV	54.0	-3.2	1.94 V	337	41.53	9.27
7	7386.00	50.5 PK	74.0	-23.5	1.82 V	357	33.88	16.62
8	7386.00	38.7 AV	54.0	-15.3	1.82 V	357	22.08	16.62

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11n (HT20)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	73.4 PK	74.0	-0.6	2.26 H	61	73.52	-0.12
2	2390.00	51.8 AV	54.0	-2.2	2.26 H	61	51.92	-0.12
3	*2412.00	113.1 PK			2.26 H	61	113.13	-0.03
4	*2412.00	102.4 AV			2.26 H	61	102.43	-0.03
5	4824.00	48.7 PK	74.0	-25.3	1.44 H	356	39.68	9.02
6	4824.00	43.8 AV	54.0	-10.2	1.44 H	356	34.78	9.02
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.8 PK	74.0	-6.2	1.91 V	330	67.92	-0.12
2	2390.00	46.6 AV	54.0	-7.4	1.91 V	330	46.72	-0.12
3	*2412.00	107.9 PK			1.91 V	330	107.93	-0.03
4	*2412.00	97.0 AV			1.91 V	330	97.03	-0.03
5	4824.00	54.9 PK	74.0	-19.1	1.97 V	330	45.88	9.02
6	4824.00	48.0 AV	54.0	-6.0	1.97 V	330	38.98	9.02

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.2 PK	74.0	-7.8	2.02 H	50	66.32	-0.12
2	2390.00	49.9 AV	54.0	-4.1	2.02 H	50	50.02	-0.12
3	*2437.00	119.6 PK			2.02 H	50	119.52	0.08
4	*2437.00	108.6 AV			2.02 H	50	108.52	0.08
5	2483.50	73.8 PK	74.0	-0.2	2.02 H	50	73.49	0.31
6	2483.50	50.2 AV	54.0	-3.8	2.02 H	50	49.89	0.31
7	4874.00	48.9 PK	74.0	-25.1	1.44 H	354	39.78	9.12
8	4874.00	44.1 AV	54.0	-9.9	1.44 H	354	34.98	9.12
9	7311.00	49.3 PK	74.0	-24.7	1.47 H	323	32.79	16.51
10	7311.00	36.1 AV	54.0	-17.9	1.47 H	323	19.59	16.51

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.1 PK	74.0	-12.9	1.96 V	333	61.22	-0.12
2	2390.00	44.6 AV	54.0	-9.4	1.96 V	333	44.72	-0.12
3	*2437.00	114.4 PK			1.96 V	333	114.32	0.08
4	*2437.00	103.2 AV			1.96 V	333	103.12	0.08
5	2483.50	68.2 PK	74.0	-5.8	1.96 V	333	67.89	0.31
6	2483.50	44.9 AV	54.0	-9.1	1.96 V	333	44.59	0.31
7	4874.00	54.7 PK	74.0	-19.3	1.88 V	329	45.58	9.12
8	4874.00	50.8 AV	54.0	-3.2	1.88 V	329	41.68	9.12
9	7311.00	50.9 PK	74.0	-23.1	1.77 V	360	34.39	16.51
10	7311.00	38.9 AV	54.0	-15.1	1.77 V	360	22.39	16.51

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.4 PK			1.78 H	61	112.19	0.21
2	*2462.00	101.2 AV			1.78 H	61	100.99	0.21
3	2483.50	73.7 PK	74.0	-0.3	1.78 H	61	73.39	0.31
4	2483.50	53.7 AV	54.0	-0.3	1.78 H	61	53.39	0.31
5	4924.00	49.4 PK	74.0	-24.6	1.44 H	348	40.13	9.27
6	4924.00	44.4 AV	54.0	-9.6	1.44 H	348	35.13	9.27
7	7386.00	49.3 PK	74.0	-24.7	1.45 H	314	32.68	16.62
8	7386.00	36.1 AV	54.0	-17.9	1.45 H	314	19.48	16.62

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	107.0 PK			1.92 V	337	106.79	0.21
2	*2462.00	95.6 AV			1.92 V	337	95.39	0.21
3	2483.50	68.3 PK	74.0	-5.7	1.92 V	337	67.99	0.31
4	2483.50	48.1 AV	54.0	-5.9	1.92 V	337	47.79	0.31
5	4924.00	54.7 PK	74.0	-19.3	1.84 V	336	45.43	9.27
6	4924.00	50.6 AV	54.0	-3.4	1.84 V	336	41.33	9.27
7	7386.00	51.3 PK	74.0	-22.7	1.78 V	360	34.68	16.62
8	7386.00	39.1 AV	54.0	-14.9	1.78 V	360	22.48	16.62

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11n (HT40)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.3 PK	74.0	-4.7	2.21 H	73	69.42	-0.12
2	2390.00	53.9 AV	54.0	-0.1	2.21 H	73	54.02	-0.12
3	*2422.00	109.4 PK			2.21 H	73	109.39	0.01
4	*2422.00	98.0 AV			2.21 H	73	97.99	0.01
5	4844.00	49.4 PK	74.0	-24.6	1.49 H	334	40.34	9.06
6	4844.00	44.2 AV	54.0	-9.8	1.49 H	334	35.14	9.06
7	7266.00	49.4 PK	74.0	-24.6	1.48 H	329	32.74	16.66
8	7266.00	36.3 AV	54.0	-17.7	1.48 H	329	19.64	16.66
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.1 PK	74.0	-9.9	1.95 V	327	64.22	-0.12
2	2390.00	48.5 AV	54.0	-5.5	1.95 V	327	48.62	-0.12
3	*2422.00	104.0 PK			1.95 V	327	103.99	0.01
4	*2422.00	92.4 AV			1.95 V	327	92.39	0.01
5	4844.00	55.2 PK	74.0	-18.8	1.88 V	326	46.14	9.06
6	4844.00	50.8 AV	54.0	-3.2	1.88 V	326	41.74	9.06
7	7266.00	51.2 PK	74.0	-22.8	1.83 V	360	34.54	16.66
8	7266.00	39.0 AV	54.0	-15.0	1.83 V	360	22.34	16.66

REMARKS:

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
- The other emission levels were very low against the limit.
- Margin value = Emission Level – Limit value
- " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.1 PK	74.0	-3.9	2.28 H	65	70.22	-0.12
2	2390.00	49.2 AV	54.0	-4.8	2.28 H	65	49.32	-0.12
3	*2437.00	112.1 PK			2.28 H	65	112.02	0.08
4	*2437.00	100.7 AV			2.28 H	65	100.62	0.08
5	2483.50	73.9 PK	74.0	-0.1	2.28 H	65	73.59	0.31
6	2483.50	51.3 AV	54.0	-2.7	2.28 H	65	50.99	0.31
7	4874.00	49.9 PK	74.0	-24.1	1.51 H	328	40.78	9.12
8	4874.00	44.5 AV	54.0	-9.5	1.51 H	328	35.38	9.12
9	7311.00	49.6 PK	74.0	-24.4	1.51 H	345	33.09	16.51
10	7311.00	36.2 AV	54.0	-17.8	1.51 H	345	19.69	16.51

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.0 PK	74.0	-9.0	1.97 V	336	65.12	-0.12
2	2390.00	43.8 AV	54.0	-10.2	1.97 V	336	43.92	-0.12
3	*2437.00	106.9 PK			1.97 V	336	106.82	0.08
4	*2437.00	95.3 AV			1.97 V	336	95.22	0.08
5	2483.50	68.7 PK	74.0	-5.3	1.97 V	336	68.39	0.31
6	2483.50	45.9 AV	54.0	-8.1	1.97 V	336	45.59	0.31
7	4874.00	55.2 PK	74.0	-18.8	1.92 V	334	46.08	9.12
8	4874.00	50.8 AV	54.0	-3.2	1.92 V	334	41.68	9.12
9	7311.00	51.3 PK	74.0	-22.7	1.89 V	360	34.79	16.51
10	7311.00	39.3 AV	54.0	-14.7	1.89 V	360	22.79	16.51

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	107.0 PK			2.21 H	65	106.85	0.15
2	*2452.00	95.8 AV			2.21 H	65	95.65	0.15
3	2483.50	69.1 PK	74.0	-4.9	2.21 H	65	68.79	0.31
4	2483.50	53.8 AV	54.0	-0.2	2.21 H	65	53.49	0.31
5	4904.00	49.6 PK	74.0	-24.4	1.52 H	313	40.41	9.19
6	4904.00	44.3 AV	54.0	-9.7	1.52 H	313	35.11	9.19
7	7356.00	49.3 PK	74.0	-24.7	1.49 H	341	32.71	16.59
8	7356.00	47.5 AV	54.0	-6.5	1.49 H	341	30.91	16.59
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	101.7 PK			1.92 V	323	101.55	0.15
2	*2452.00	90.2 AV			1.92 V	323	90.05	0.15
3	2483.50	64.0 PK	74.0	-10.0	1.92 V	323	63.69	0.31
4	2483.50	48.4 AV	54.0	-5.6	1.92 V	323	48.09	0.31
5	4904.00	54.9 PK	74.0	-19.1	1.88 V	337	45.71	9.19
6	4904.00	50.6 AV	54.0	-3.4	1.88 V	337	41.41	9.19
7	7356.00	51.0 PK	74.0	-23.0	1.93 V	360	34.41	16.59
8	7356.00	39.2 AV	54.0	-14.8	1.93 V	360	22.61	16.59

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

Below 1GHz Data

CDD Mode

802.11b

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	108.81	33.5 QP	43.5	-10.1	1.50 H	320	49.52	-16.07
2	165.99	32.2 QP	43.5	-11.3	2.00 H	101	45.56	-13.32
3	218.62	30.3 QP	46.0	-15.8	1.50 H	73	46.04	-15.79
4	327.84	31.6 QP	46.0	-14.4	1.00 H	127	42.78	-11.14
5	500.01	27.7 QP	46.0	-18.3	2.00 H	61	34.55	-6.83
6	813.62	33.4 QP	46.0	-12.6	2.00 H	27	33.77	-0.36
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	43.82	36.1 QP	40.0	-4.0	1.00 V	141	49.24	-13.19
2	50.47	35.1 QP	40.0	-4.9	1.00 V	180	48.19	-13.13
3	108.81	31.2 QP	43.5	-12.3	1.00 V	360	47.30	-16.07
4	166.29	29.7 QP	43.5	-13.8	1.00 V	278	42.99	-13.33
5	237.44	29.9 QP	46.0	-16.1	1.00 V	360	44.58	-14.64
6	320.27	30.6 QP	46.0	-15.4	1.00 V	360	41.94	-11.35

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

4.1.8 Test Results (Mode 2)

Above 1GHz Data

CDD Mode

802.11b

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.6 PK	74.0	-15.4	2.35 H	63	58.72	-0.12
2	2390.00	48.1 AV	54.0	-5.9	2.35 H	63	48.22	-0.12
3	*2412.00	106.5 PK			2.35 H	63	106.53	-0.03
4	*2412.00	103.4 AV			2.35 H	63	103.43	-0.03
5	4824.00	46.3 PK	74.0	-27.7	1.78 H	360	37.28	9.02
6	4824.00	40.7 AV	54.0	-13.3	1.78 H	360	31.68	9.02
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.7 PK	74.0	-12.3	1.98 V	207	61.82	-0.12
2	2390.00	53.5 AV	54.0	-0.5	1.98 V	207	53.62	-0.12
3	*2412.00	115.3 PK			1.98 V	207	115.33	-0.03
4	*2412.00	111.9 AV			1.98 V	207	111.93	-0.03
5	4824.00	50.6 PK	74.0	-23.4	1.71 V	338	41.58	9.02
6	4824.00	48.0 AV	54.0	-6.0	1.71 V	338	38.98	9.02

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	112.9 PK			2.36 H	60	112.82	0.08
2	*2437.00	109.8 AV			2.36 H	60	109.72	0.08
3	4874.00	46.2 PK	74.0	-27.8	1.76 H	360	37.08	9.12
4	4874.00	40.7 AV	54.0	-13.3	1.76 H	360	31.58	9.12
5	7311.00	49.5 PK	74.0	-24.5	1.41 H	352	32.99	16.51
6	7311.00	35.6 AV	54.0	-18.4	1.41 H	352	19.09	16.51
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	118.4 PK			2.02 V	148	118.32	0.08
2	*2437.00	115.2 AV			2.02 V	148	115.12	0.08
3	4874.00	50.8 PK	74.0	-23.2	1.76 V	348	41.71	9.12
4	4874.00	47.9 AV	54.0	-6.1	1.76 V	348	38.78	9.12
5	7311.00	49.4 PK	74.0	-24.6	1.84 V	360	32.89	16.51
6	7311.00	37.7 AV	54.0	-16.3	1.84 V	360	21.19	16.51

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.5 PK			2.38 H	66	106.29	0.21
2	*2462.00	103.4 AV			2.38 H	66	103.19	0.21
3	2483.50	58.8 PK	74.0	-15.2	2.38 H	66	58.49	0.31
4	2483.50	48.1 AV	54.0	-5.9	2.38 H	66	47.79	0.31
5	4924.00	46.1 PK	74.0	-27.9	1.73 H	344	36.83	9.27
6	4924.00	40.9 AV	54.0	-13.1	1.73 H	344	31.63	9.27
7	7386.00	49.8 PK	74.0	-24.2	1.38 H	352	33.18	16.62
8	7386.00	35.6 AV	54.0	-18.4	1.38 H	352	18.98	16.62
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	115.4 PK			1.90 V	206	115.19	0.21
2	*2462.00	111.8 AV			1.90 V	206	111.59	0.21
3	4924.00	51.5 PK	74.0	-22.5	1.77 V	360	42.23	9.27
4	4924.00	48.3 AV	54.0	-5.7	1.77 V	360	39.03	9.27
5	7386.00	49.6 PK	74.0	-24.4	1.83 V	360	32.98	16.62
6	7386.00	38.1 AV	54.0	-15.9	1.83 V	360	21.48	16.62

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.8 PK	74.0	-4.2	2.37 H	51	69.92	-0.12
2	2390.00	48.4 AV	54.0	-5.6	2.37 H	51	48.52	-0.12
3	*2412.00	104.9 PK			2.37 H	51	104.93	-0.03
4	*2412.00	94.7 AV			2.37 H	51	94.73	-0.03
5	4824.00	45.9 PK	74.0	-28.1	1.69 H	345	36.88	9.02
6	4824.00	40.8 AV	54.0	-13.2	1.69 H	345	31.78	9.02
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	73.0 PK	74.0	-1.0	2.05 V	206	73.12	-0.12
2	2390.00	53.7 AV	54.0	-0.3	2.05 V	206	53.82	-0.12
3	*2412.00	113.7 PK			2.05 V	206	113.73	-0.03
4	*2412.00	103.3 AV			2.05 V	206	103.33	-0.03
5	4824.00	51.5 PK	74.0	-22.5	1.73 V	360	42.48	9.02
6	4824.00	48.5 AV	54.0	-5.5	1.73 V	360	39.48	9.02

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	111.1 PK			2.35 H	64	111.02	0.08
2	*2437.00	100.9 AV			2.35 H	64	100.82	0.08
3	4874.00	46.6 PK	74.0	-27.4	1.71 H	333	37.48	9.12
4	4874.00	41.2 AV	54.0	-12.8	1.71 H	333	32.08	9.12
5	7311.00	49.6 PK	74.0	-24.4	1.41 H	338	33.09	16.51
6	7311.00	35.6 AV	54.0	-18.4	1.41 H	338	19.09	16.51
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	120.1 PK			2.09 V	220	120.02	0.08
2	*2437.00	109.4 AV			2.09 V	220	109.32	0.08
3	4874.00	51.7 PK	74.0	-22.3	1.76 V	360	42.58	9.12
4	4874.00	48.2 AV	54.0	-5.8	1.76 V	360	39.08	9.12
5	7311.00	49.3 PK	74.0	-24.7	1.87 V	360	32.79	16.51
6	7311.00	37.7 AV	54.0	-16.3	1.87 V	360	21.19	16.51

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	107.8 PK			2.33 H	77	107.59	0.21
2	*2462.00	97.5 AV			2.33 H	77	97.29	0.21
3	2483.50	68.0 PK	74.0	-6.0	2.33 H	77	67.69	0.31
4	2483.50	48.4 AV	54.0	-5.6	2.33 H	77	48.09	0.31
5	4924.00	46.6 PK	74.0	-27.4	1.73 H	347	37.33	9.27
6	4924.00	41.1 AV	54.0	-12.9	1.73 H	347	31.83	9.27
7	7386.00	49.4 PK	74.0	-24.6	1.36 H	333	32.78	16.62
8	7386.00	35.5 AV	54.0	-18.5	1.36 H	333	18.88	16.62

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	116.3 PK			2.01 V	185	116.09	0.21
2	*2462.00	106.0 AV			2.01 V	185	105.79	0.21
3	2483.50	71.1 PK	74.0	-2.9	2.01 V	185	70.79	0.31
4	2483.50	53.8 AV	54.0	-0.2	2.01 V	185	53.49	0.31
5	4924.00	51.8 PK	74.0	-22.2	1.78 V	360	42.53	9.27
6	4924.00	48.0 AV	54.0	-6.0	1.78 V	360	38.73	9.27
7	7386.00	49.1 PK	74.0	-24.9	1.87 V	360	32.48	16.62
8	7386.00	37.5 AV	54.0	-16.5	1.87 V	360	20.88	16.62

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11n (HT20)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.4 PK	74.0	-3.6	2.33 H	62	70.52	-0.12
2	2390.00	48.4 AV	54.0	-5.6	2.33 H	62	48.52	-0.12
3	*2412.00	104.1 PK			2.33 H	62	104.13	-0.03
4	*2412.00	93.9 AV			2.33 H	62	93.93	-0.03
5	4824.00	46.6 PK	74.0	-27.4	1.77 H	350	37.58	9.02
6	4824.00	41.1 AV	54.0	-12.9	1.77 H	350	32.08	9.02
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.6 PK	74.0	-1.4	2.10 V	163	72.72	-0.12
2	2390.00	52.8 AV	54.0	-1.2	2.10 V	163	52.92	-0.12
3	*2412.00	113.6 PK			2.10 V	163	113.63	-0.03
4	*2412.00	102.3 AV			2.10 V	163	102.33	-0.03
5	4824.00	51.5 PK	74.0	-22.5	1.78 V	360	42.48	9.02
6	4824.00	47.7 AV	54.0	-6.3	1.78 V	360	38.68	9.02

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.7 PK	74.0	-8.3	2.05 H	164	65.82	-0.12
2	2390.00	49.7 AV	54.0	-4.3	2.05 H	164	49.82	-0.12
3	*2437.00	110.6 PK			2.33 H	78	110.52	0.08
4	*2437.00	100.4 AV			2.33 H	78	100.32	0.08
5	2483.50	73.3 PK	74.0	-0.7	2.05 H	164	72.99	0.31
6	2483.50	50.0 AV	54.0	-4.0	2.05 H	164	49.69	0.31
7	4874.00	46.3 PK	74.0	-27.7	1.71 H	340	37.18	9.12
8	4874.00	41.0 AV	54.0	-13.0	1.71 H	340	31.88	9.12
9	7311.00	49.2 PK	74.0	-24.8	1.31 H	338	32.69	16.51
10	7311.00	35.5 AV	54.0	-18.5	1.31 H	338	18.99	16.51

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.0 PK	74.0	-13.0	2.05 V	164	61.12	-0.12
2	2390.00	44.3 AV	54.0	-9.7	2.05 V	164	44.42	-0.12
3	*2437.00	119.8 PK			2.05 V	164	119.72	0.08
4	*2437.00	108.8 AV			2.05 V	164	108.72	0.08
5	2483.50	68.4 PK	74.0	-5.6	2.05 V	164	68.09	0.31
6	2483.50	45.0 AV	54.0	-9.0	2.05 V	164	44.69	0.31
7	4874.00	51.3 PK	74.0	-22.7	1.78 V	360	42.18	9.12
8	4874.00	47.8 AV	54.0	-6.2	1.78 V	360	38.68	9.12
9	7311.00	49.6 PK	74.0	-24.4	1.90 V	360	33.09	16.51
10	7311.00	38.0 AV	54.0	-16.0	1.90 V	360	21.49	16.51

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.9 PK			2.34 H	78	104.69	0.21
2	*2462.00	94.6 AV			2.34 H	78	94.39	0.21
3	2483.50	70.6 PK	74.0	-3.4	2.34 H	78	70.29	0.31
4	2483.50	48.5 AV	54.0	-5.5	2.34 H	78	48.19	0.31
5	4924.00	46.1 PK	74.0	-27.9	1.73 H	353	36.83	9.27
6	4924.00	40.8 AV	54.0	-13.2	1.73 H	353	31.53	9.27
7	7386.00	49.3 PK	74.0	-24.7	1.35 H	331	32.68	16.62
8	7386.00	35.4 AV	54.0	-18.6	1.35 H	331	18.78	16.62

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.0 PK			1.84 V	181	113.79	0.21
2	*2462.00	103.1 AV			1.84 V	181	102.89	0.21
3	2483.50	73.5 PK	74.0	-0.5	1.84 V	181	73.19	0.31
4	2483.50	53.4 AV	54.0	-0.6	1.84 V	181	53.09	0.31
5	4924.00	51.9 PK	74.0	-22.1	1.82 V	360	42.63	9.27
6	4924.00	48.1 AV	54.0	-5.9	1.82 V	360	38.83	9.27
7	7386.00	49.4 PK	74.0	-24.6	1.92 V	360	32.78	16.62
8	7386.00	37.8 AV	54.0	-16.2	1.92 V	360	21.18	16.62

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11n (HT40)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.3 PK	74.0	-8.7	2.38 H	64	65.42	-0.12
2	2390.00	48.6 AV	54.0	-5.4	2.38 H	64	48.72	-0.12
3	*2422.00	99.6 PK			2.38 H	64	99.59	0.01
4	*2422.00	89.4 AV			2.38 H	64	89.39	0.01
5	4844.00	45.6 PK	74.0	-28.4	1.76 H	338	36.54	9.06
6	4844.00	40.4 AV	54.0	-13.6	1.76 H	338	31.34	9.06
7	7266.00	49.5 PK	74.0	-24.5	1.36 H	344	32.84	16.66
8	7266.00	35.4 AV	54.0	-18.6	1.36 H	344	18.74	16.66
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.6 PK	74.0	-5.4	1.95 V	205	68.72	-0.12
2	2390.00	53.9 AV	54.0	-0.1	1.95 V	205	54.02	-0.12
3	*2422.00	108.6 PK			1.95 V	205	108.59	0.01
4	*2422.00	97.9 AV			1.95 V	205	97.89	0.01
5	4844.00	52.4 PK	74.0	-21.6	1.85 V	360	43.34	9.06
6	4844.00	48.4 AV	54.0	-5.6	1.85 V	360	39.34	9.06
7	7266.00	50.0 PK	74.0	-24.0	1.92 V	360	33.34	16.66
8	7266.00	38.1 AV	54.0	-15.9	1.92 V	360	21.44	16.66

REMARKS:

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
- The other emission levels were very low against the limit.
- Margin value = Emission Level – Limit value
- " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.1 PK	74.0	-15.9	2.35 H	60	58.22	-0.12
2	2390.00	45.2 AV	54.0	-8.8	2.35 H	60	45.32	-0.12
3	*2437.00	103.3 PK			2.35 H	60	103.22	0.08
4	*2437.00	93.1 AV			2.35 H	60	93.02	0.08
5	2483.50	68.6 PK	74.0	-5.4	2.35 H	60	68.29	0.31
6	2483.50	48.3 AV	54.0	-5.7	2.35 H	60	47.99	0.31
7	4874.00	45.4 PK	74.0	-28.6	1.79 H	328	36.28	9.12
8	4874.00	40.3 AV	54.0	-13.7	1.79 H	328	31.18	9.12
9	7311.00	49.6 PK	74.0	-24.4	1.38 H	339	33.09	16.51
10	7311.00	35.2 AV	54.0	-18.8	1.38 H	339	18.69	16.51

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.3 PK	74.0	-11.7	1.86 V	177	62.42	-0.12
2	2390.00	50.6 AV	54.0	-3.4	1.86 V	177	50.72	-0.12
3	*2437.00	113.2 PK			1.86 V	177	113.12	0.08
4	*2437.00	101.5 AV			1.86 V	177	101.42	0.08
5	2483.50	73.8 PK	74.0	-0.2	1.86 V	177	73.49	0.31
6	2483.50	53.8 AV	54.0	-0.2	1.86 V	177	53.49	0.31
7	4874.00	52.2 PK	74.0	-21.8	1.84 V	360	43.08	9.12
8	4874.00	48.2 AV	54.0	-5.8	1.84 V	360	39.08	9.12
9	7311.00	49.9 PK	74.0	-24.1	1.96 V	360	33.39	16.51
10	7311.00	38.3 AV	54.0	-15.7	1.96 V	360	21.79	16.51

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	99.5 PK			2.35 H	65	99.35	0.15
2	*2452.00	89.2 AV			2.35 H	65	89.05	0.15
3	2483.50	66.9 PK	74.0	-7.1	2.35 H	65	66.59	0.31
4	2483.50	48.7 AV	54.0	-5.3	2.35 H	65	48.39	0.31
5	4904.00	45.5 PK	74.0	-28.5	1.85 H	327	36.31	9.19
6	4904.00	40.6 AV	54.0	-13.4	1.85 H	327	31.41	9.19
7	7356.00	49.5 PK	74.0	-24.5	1.41 H	331	32.91	16.59
8	7356.00	35.1 AV	54.0	-18.9	1.41 H	331	18.51	16.59
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	108.8 PK			1.88 V	182	108.65	0.15
2	*2452.00	97.6 AV			1.88 V	182	97.45	0.15
3	2483.50	70.4 PK	74.0	-3.6	1.88 V	182	70.09	0.31
4	2483.50	53.5 AV	54.0	-0.5	1.88 V	182	53.19	0.31
5	4904.00	52.3 PK	74.0	-21.7	1.81 V	360	43.11	9.19
6	4904.00	48.5 AV	54.0	-5.5	1.81 V	360	39.31	9.19
7	7356.00	49.8 PK	74.0	-24.2	1.96 V	360	33.21	16.59
8	7356.00	38.1 AV	54.0	-15.9	1.96 V	360	21.51	16.59

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

Below 1GHz Data

CDD Mode

802.11b

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	50.81	33.5 QP	40.0	-6.5	1.10 H	280	46.62	-13.16
2	145.99	32.2 QP	43.5	-11.3	1.00 H	141	45.33	-13.10
3	218.62	30.2 QP	46.0	-15.8	1.50 H	203	46.03	-15.79
4	427.84	31.6 QP	46.0	-14.4	1.00 H	27	39.96	-8.35
5	620.00	27.7 QP	46.0	-18.3	1.00 H	78	31.46	-3.74
6	813.61	33.4 QP	46.0	-12.6	2.00 H	27	33.77	-0.36
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	50.47	35.1 QP	40.0	-4.9	1.00 V	180	48.19	-13.13
2	73.82	35.0 QP	40.0	-5.0	1.00 V	51	51.28	-16.27
3	166.28	29.7 QP	43.5	-13.8	1.00 V	278	42.99	-13.33
4	237.43	29.9 QP	46.0	-16.1	1.00 V	360	44.58	-14.64
5	320.27	30.6 QP	46.0	-15.4	1.00 V	360	41.94	-11.35
6	418.81	31.2 QP	46.0	-14.8	1.30 V	36	39.95	-8.77

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	100287	Apr. 17, 2015	Apr. 16, 2016
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-523	Sep. 29, 2014	Sep. 28, 2015
RF Cable	5D-FB	COACAB-001	May 25, 2015	May 24, 2016
50 ohms Terminator	50	3	Oct. 17, 2014	Oct. 16, 2015
50 ohms Terminator	N/A	EMC-04	Oct. 21, 2014	Oct. 20, 2015
Software BVADT	BVADT_Cond_ V7.3.7.3	NA	NA	NA
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100071	Nov. 10, 2014	Nov. 09, 2015

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. A.
- 3 The VCCI Con A Registration No. is C-817.
4. Tested Date: Aug. 06, 2015

4.2.3 Test Procedures

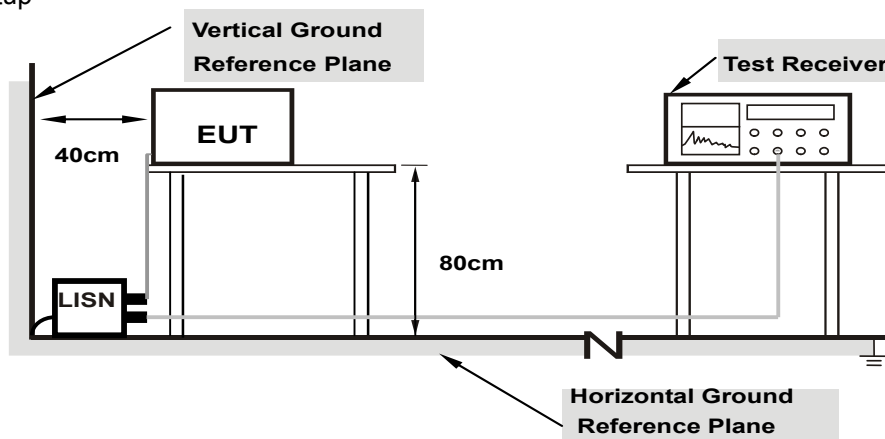
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results (Mode 1)

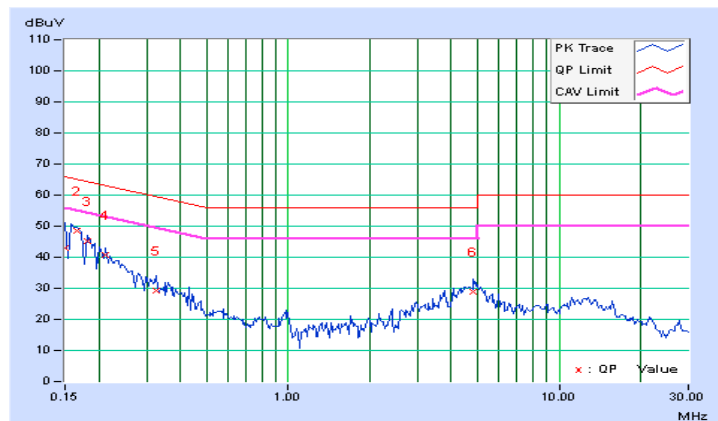
CDD Mode

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.10	43.04	24.64	43.14	24.74	66.00	56.00	-22.86	-31.26
2	0.16562	0.10	48.36	33.42	48.46	33.52	65.18	55.18	-16.72	-21.66
3	0.18125	0.10	45.14	29.02	45.24	29.12	64.43	54.43	-19.19	-25.31
4	0.21250	0.10	40.58	25.84	40.68	25.94	63.11	53.11	-22.42	-27.16
5	0.32578	0.14	29.00	15.00	29.14	15.14	59.56	49.56	-30.42	-34.42
6	4.83984	0.37	28.64	22.74	29.01	23.11	56.00	46.00	-26.99	-22.89

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

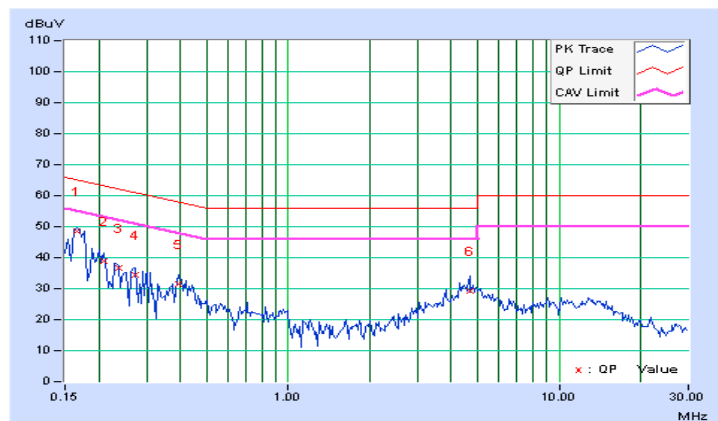


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16562	0.09	48.48	37.90	48.57	37.99	65.18	55.18	-16.61	-17.19
2	0.20859	0.10	38.80	21.46	38.90	21.56	63.26	53.26	-24.36	-31.70
3	0.23594	0.11	36.40	23.40	36.51	23.51	62.24	52.24	-25.73	-28.73
4	0.27109	0.12	34.36	22.94	34.48	23.06	61.08	51.08	-26.61	-28.03
5	0.39219	0.15	31.38	23.02	31.53	23.17	58.02	48.02	-26.49	-24.85
6	4.67969	0.33	29.06	23.04	29.39	23.37	56.00	46.00	-26.61	-22.63

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



4.2.8 Test Results (Mode 3)

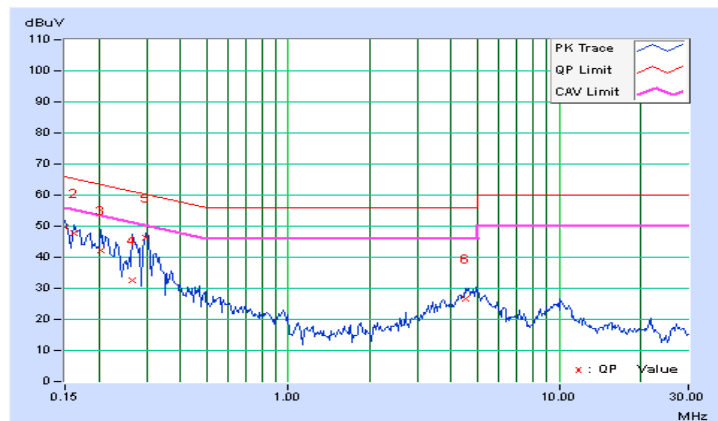
CDD Mode

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	----------	-------------------	--------------------------------

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.10	49.48	36.70	49.58	36.80	66.00	56.00	-16.42	-19.20
2	0.16172	0.10	47.74	35.90	47.84	36.00	65.38	55.38	-17.54	-19.38
3	0.20469	0.10	42.12	31.56	42.22	31.66	63.42	53.42	-21.20	-21.76
4	0.26719	0.12	32.38	17.76	32.50	17.88	61.20	51.20	-28.70	-33.32
5	0.29844	0.13	46.30	43.10	46.43	43.23	60.29	50.29	-13.86	-7.06
6	4.50781	0.36	26.34	20.34	26.70	20.70	56.00	46.00	-29.30	-25.30

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

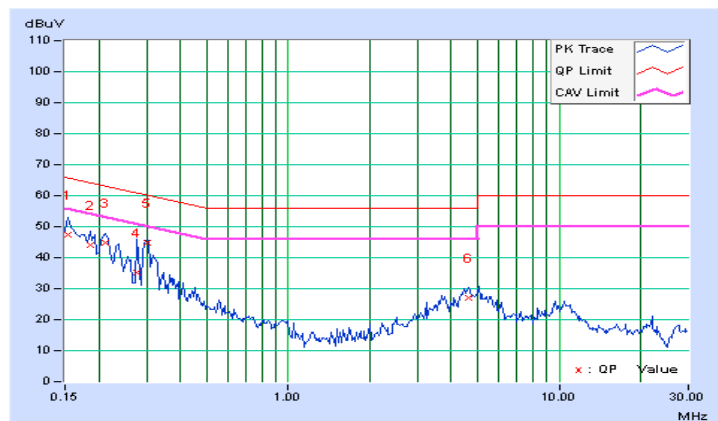


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	0.09	47.38	35.94	47.47	36.03	65.79	55.79	-18.32	-19.76
2	0.18516	0.10	43.86	31.94	43.96	32.04	64.25	54.25	-20.30	-22.22
3	0.21250	0.10	44.64	37.58	44.74	37.68	63.11	53.11	-18.36	-15.42
4	0.27500	0.12	35.22	25.78	35.34	25.90	60.97	50.97	-25.63	-25.07
5	0.30225	0.13	44.84	41.70	44.97	41.83	60.18	50.18	-15.22	-8.36
6	4.62500	0.33	26.56	20.60	26.89	20.93	56.00	46.00	-29.11	-25.07

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



4.2.9 Test Results (Mode 4)

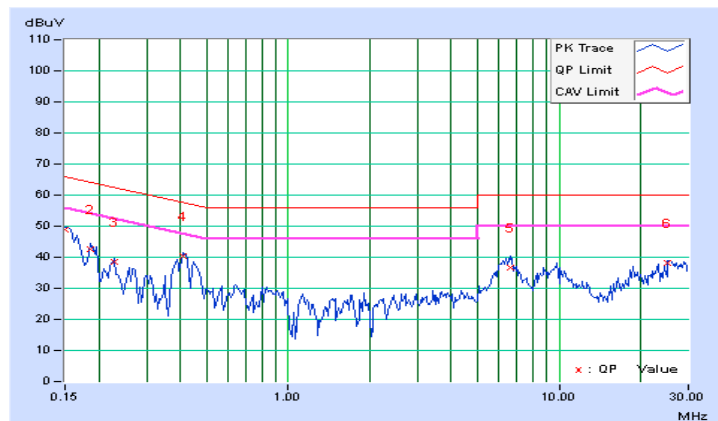
CDD Mode

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.10	48.86	41.14	48.96	41.24	66.00	56.00	-17.04	-14.76
2	0.18516	0.10	42.42	32.88	42.52	32.98	64.25	54.25	-21.73	-21.27
3	0.22812	0.11	38.58	31.26	38.69	31.37	62.52	52.52	-23.83	-21.15
4	0.40781	0.16	40.10	30.68	40.26	30.84	57.69	47.69	-17.43	-16.85
5	6.58203	0.43	36.10	30.28	36.53	30.71	60.00	50.00	-23.47	-19.29
6	25.14063	0.86	37.28	34.80	38.14	35.66	60.00	50.00	-21.86	-14.34

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

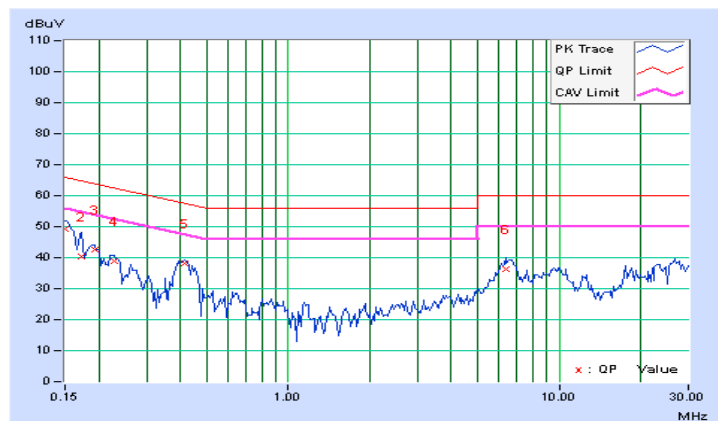


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.08	49.22	40.82	49.30	40.90	66.00	56.00	-16.70	-15.10
2	0.17344	0.09	40.18	17.52	40.27	17.61	64.79	54.79	-24.52	-37.18
3	0.19297	0.10	42.50	33.32	42.60	33.42	63.91	53.91	-21.31	-20.49
4	0.22812	0.11	38.66	30.78	38.77	30.89	62.52	52.52	-23.75	-21.63
5	0.41563	0.15	37.82	33.62	37.97	33.77	57.54	47.54	-19.56	-13.76
6	6.36328	0.39	35.98	30.44	36.37	30.83	60.00	50.00	-23.63	-19.17

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

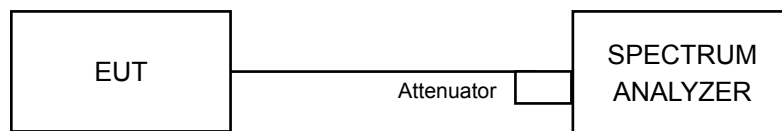


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

- Set resolution bandwidth (RBW) = 100kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

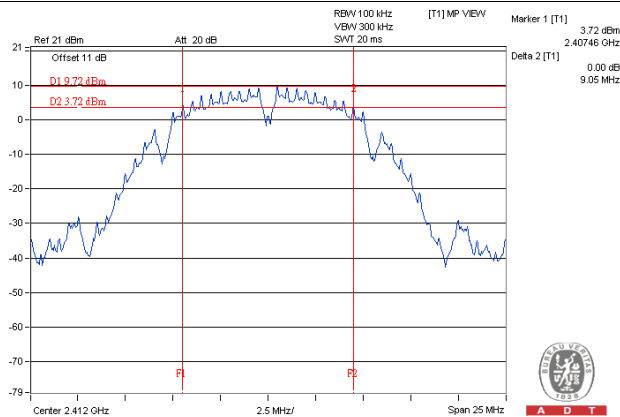
4.3.7 Test Result

CDD Mode

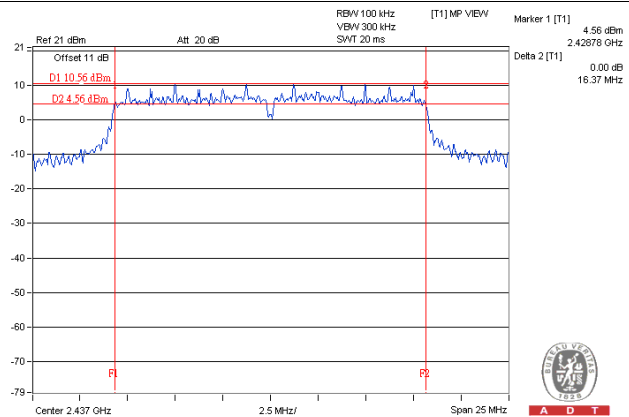
Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
802.11b						
1	2412	9.05	9.08	9.07	0.5	Pass
6	2437	9.59	9.10	9.10	0.5	Pass
11	2462	9.07	9.06	9.08	0.5	Pass
802.11g						
1	2412	16.41	16.40	16.38	0.5	Pass
6	2437	16.37	16.37	16.41	0.5	Pass
11	2462	16.40	16.41	16.38	0.5	Pass
802.11n (HT20)						
1	2412	17.65	17.66	17.58	0.5	Pass
6	2437	17.59	17.64	17.62	0.5	Pass
11	2462	17.64	17.63	17.36	0.5	Pass
802.11n (HT40)						
3	2422	36.42	36.24	36.19	0.5	Pass
6	2437	35.88	36.43	36.24	0.5	Pass
9	2452	35.87	36.43	36.22	0.5	Pass

Spectrum Plot of Worst Value

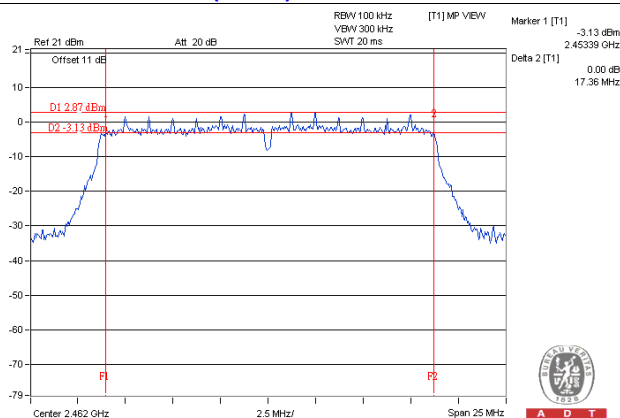
802.11b – Chain 0: CH 1



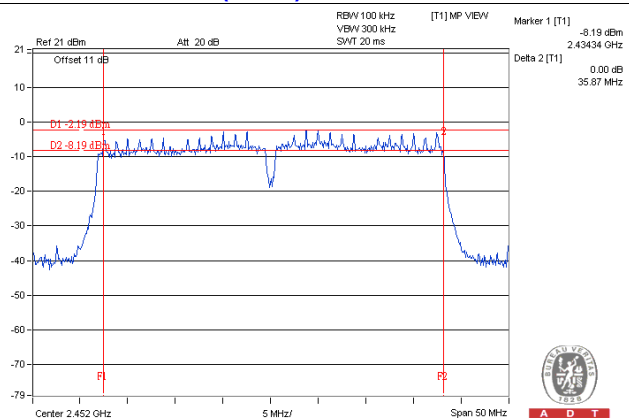
802.11g – Chain 1: CH 6



802.11n (HT20) – Chain 2: CH 11



802.11n (HT40) – Chain 0: CH 9



4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

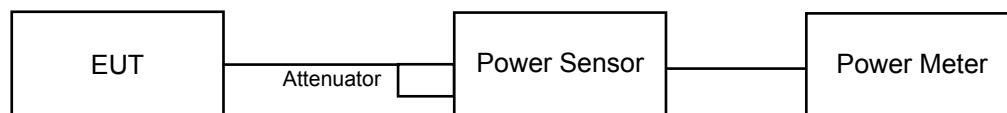
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

An average power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power sensor. Record the power level.

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

CDD Mode

Channel	Frequency (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
802.11b								
1	2412	18.90	18.75	18.38	221.479	23.45	30	Pass
6	2437	22.40	21.65	22.16	484.435	26.85	30	Pass
11	2462	17.56	17.07	17.18	160.189	22.05	30	Pass
802.11g								
1	2412	15.40	15.36	15.00	100.653	20.03	30	Pass
6	2437	22.23	21.52	21.78	459.676	26.62	30	Pass
11	2462	16.53	16.10	16.05	125.988	21.00	30	Pass
802.11n (HT20)								
1	2412	15.14	14.82	14.69	92.442	19.66	30	Pass
6	2437	22.20	21.44	21.80	456.631	26.60	30	Pass
11	2462	13.63	13.29	13.69	67.785	18.31	30	Pass
802.11n (HT40)								
3	2422	13.28	13.29	13.10	63.028	18.00	30	Pass
6	2437	16.17	16.06	15.83	120.047	20.79	30	Pass
9	2452	11.30	11.40	11.21	40.507	16.08	30	Pass

Beamforming Mode

Channel	Frequency (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
802.11n (HT20)								
1	2412	15.14	14.82	14.69	92.442	19.66	26.23	Pass
6	2437	21.57	20.68	21.02	386.973	25.88	26.23	Pass
11	2462	13.63	13.29	13.69	67.785	18.31	26.23	Pass
802.11n (HT40)								
3	2422	13.28	13.29	13.10	63.028	18.00	26.23	Pass
6	2437	16.17	16.06	15.83	120.047	20.79	26.23	Pass
9	2452	11.30	11.40	11.21	40.507	16.08	26.23	Pass

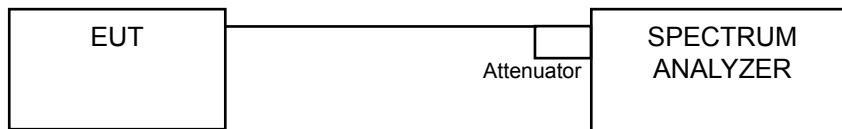
NOTE: Directional gain = 5dBi + 10log(3) = 9.77dBi > 6dBi , so the power limit shall be reduced to 30-(9.77-6) = 26.23dBm.

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

For AVG. power (duty cycle $\geq 98\%$)

- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 times the OBW.
- Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set VBW $\geq 3 \times \text{RBW}$.
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span}/\text{RBW}$.
- Sweep time = auto couple.
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.

For AVG. power (duty cycle $< 98\%$)

- Measure the duty cycle (x).
- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 times the OBW.
- Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set VBW $\geq 3 \times \text{RBW}$.
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span}/\text{RBW}$.
- Sweep time = auto couple.
- Do not use sweep triggering. Allow sweep to "free run".
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.
- Add $10 \log(1/x)$, where x is the duty cycle measured in step (a), to the measured PSD to compute the average PSD during the actual transmission time.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6

4.5.7 Test Results

CDD Mode

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=3) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
802.11b							
0	1	2412	-10.14	4.77	-5.37	4.23	Pass
	6	2437	-7.04	4.77	-2.27	4.23	Pass
	11	2462	-11.57	4.77	-6.80	4.23	Pass
1	1	2412	-10.09	4.77	-5.32	4.23	Pass
	6	2437	-6.93	4.77	-2.16	4.23	Pass
	11	2462	-11.02	4.77	-6.25	4.23	Pass
2	1	2412	-9.46	4.77	-4.69	4.23	Pass
	6	2437	-6.86	4.77	-2.09	4.23	Pass
	11	2462	-11.47	4.77	-6.70	4.23	Pass
802.11g							
0	1	2412	-13.62	4.77	-8.85	4.23	Pass
	6	2437	-7.27	4.77	-2.50	4.23	Pass
	11	2462	-12.35	4.77	-7.58	4.23	Pass
1	1	2412	-13.70	4.77	-8.93	4.23	Pass
	6	2437	-7.90	4.77	-3.13	4.23	Pass
	11	2462	-12.87	4.77	-8.10	4.23	Pass
2	1	2412	-13.77	4.77	-9.00	4.23	Pass
	6	2437	-7.60	4.77	-2.83	4.23	Pass
	11	2462	-12.49	4.77	-7.72	4.23	Pass
802.11n (HT20)							
0	1	2412	-15.96	4.77	-11.19	4.23	Pass
	6	2437	-9.28	4.77	-4.51	4.23	Pass
	11	2462	-18.25	4.77	-13.48	4.23	Pass
1	1	2412	-15.05	4.77	-10.28	4.23	Pass
	6	2437	-9.08	4.77	-4.31	4.23	Pass
	11	2462	-17.09	4.77	-12.32	4.23	Pass
2	1	2412	-15.52	4.77	-10.75	4.23	Pass
	6	2437	-8.46	4.77	-3.69	4.23	Pass
	11	2462	-16.89	4.77	-12.12	4.23	Pass

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

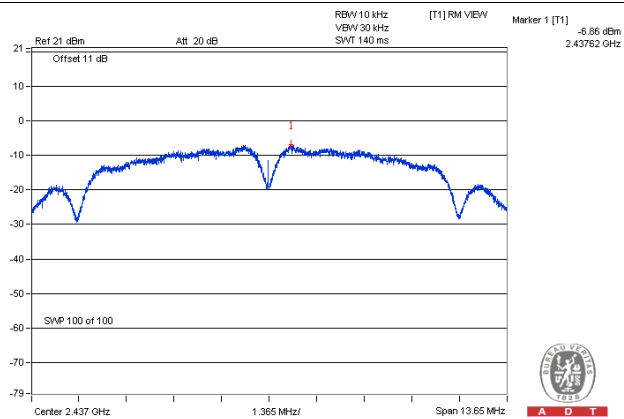
2. Directional gain = 5dBi + 10log(3) = 9.77dBi > 6dBi , so the power density limit shall be reduced to 8-(9.77-6) = 4.23dBm.

TX chain	Channel	Freq. (MHz)	PSD w/o Duty Factor (dBm)	10 log (N=3) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm)	Limit (dBm)	Pass /Fail
802.11n (HT40)								
0	3	2422	-19.67	4.77	0.15	-14.75	4.23	Pass
	6	2437	-16.99	4.77	0.15	-12.07	4.23	Pass
	9	2452	-21.59	4.77	0.15	-16.67	4.23	Pass
1	3	2422	-18.52	4.77	0.15	-13.60	4.23	Pass
	6	2437	-15.81	4.77	0.15	-10.89	4.23	Pass
	9	2452	-20.42	4.77	0.15	-15.50	4.23	Pass
2	3	2422	-19.14	4.77	0.15	-14.22	4.23	Pass
	6	2437	-16.67	4.77	0.15	-11.75	4.23	Pass
	9	2452	-20.79	4.77	0.15	-15.87	4.23	Pass

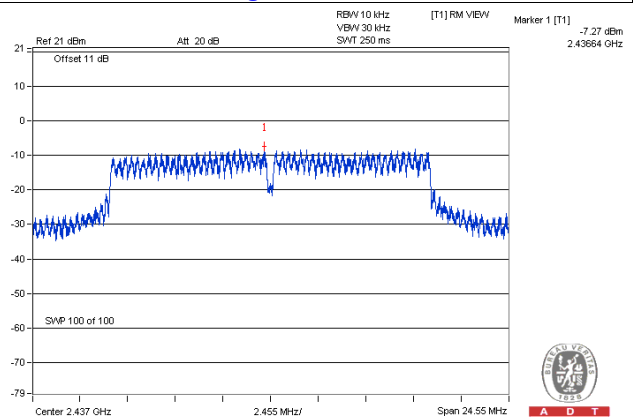
- Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $5\text{dBi} + 10\log(3) = 9.77\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(9.77-6) = 4.23\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

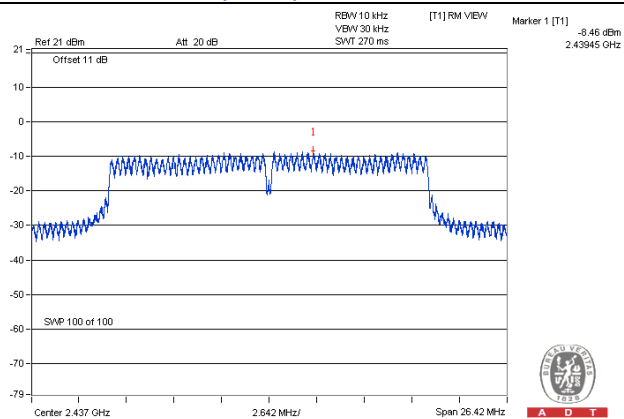
802.11b – Chain 2: CH 6



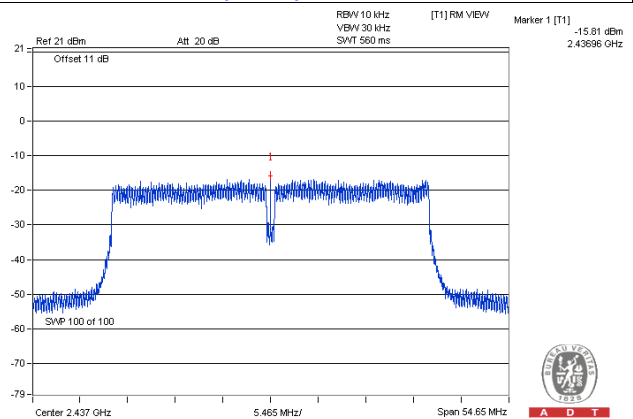
802.11g – Chain 0: CH 6



802.11n (HT20) – Chain 2: CH 6



802.11n (HT40) – Chain 1: CH 6

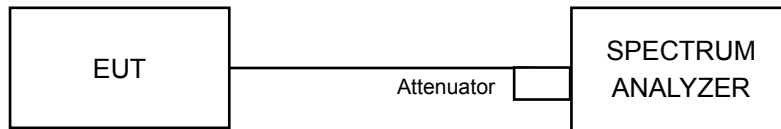


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

Below 30dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW $\geq$ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

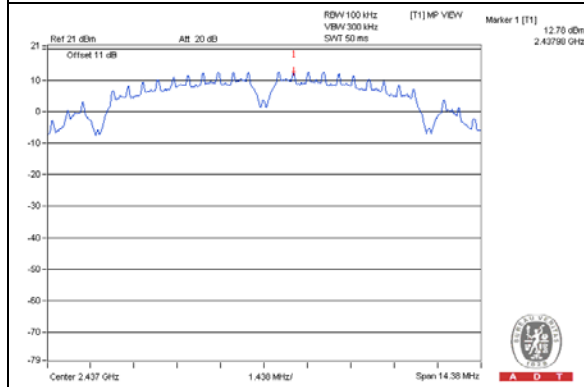
Same as Item 4.3.6

4.6.7 Test Results

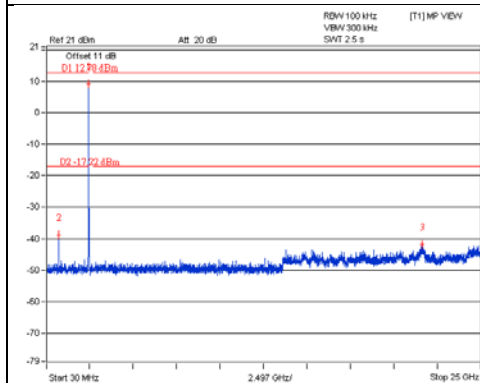
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

CDD Mode
802.11b

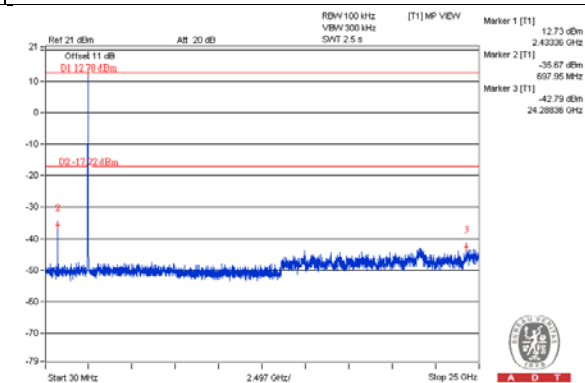
Maximum REF



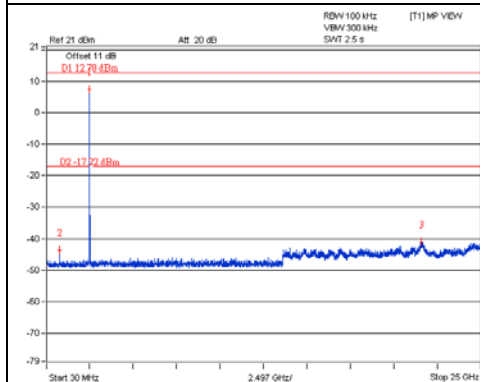
Chain 0
CH 1



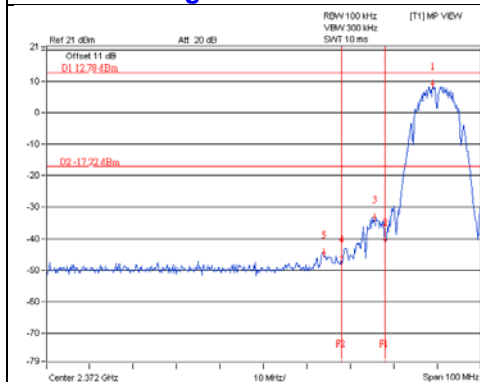
CH 6



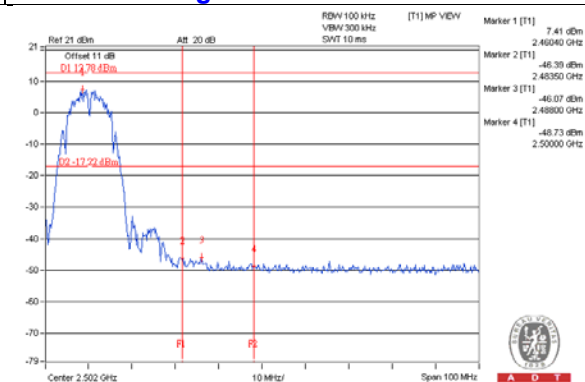
CH 11



CH 1 Band edge

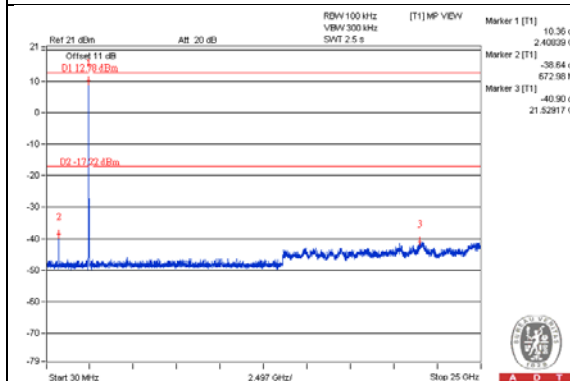


CH 11 Band edge

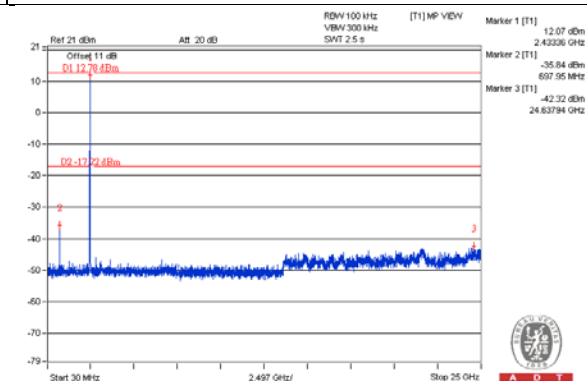


Chain 1

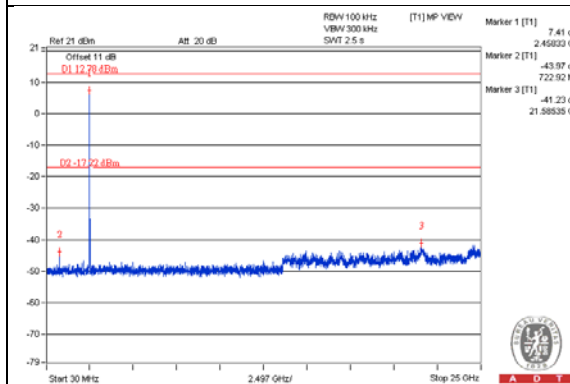
CH 1



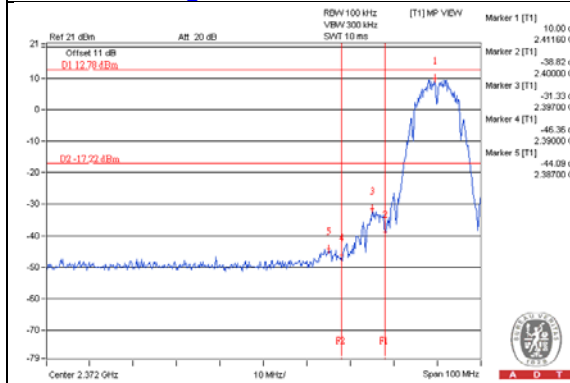
CH 6



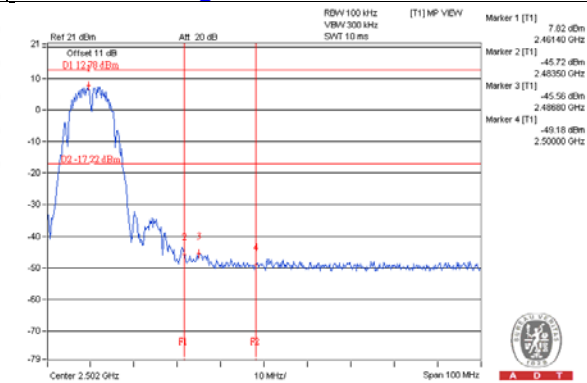
CH 11



CH 1 Band edge

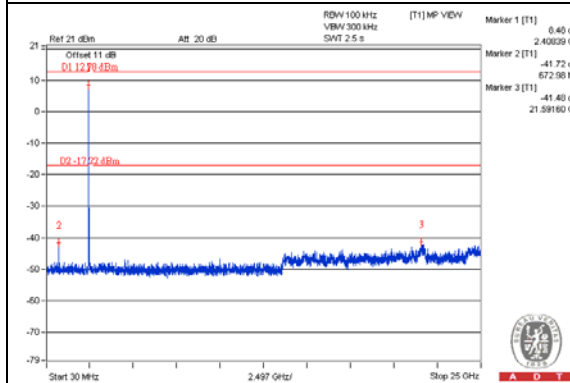


CH 11 Band edge

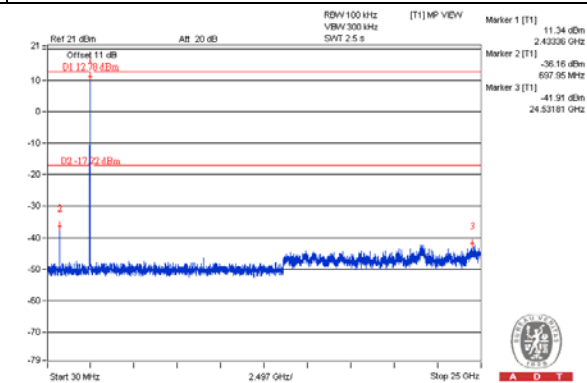


Chain 2

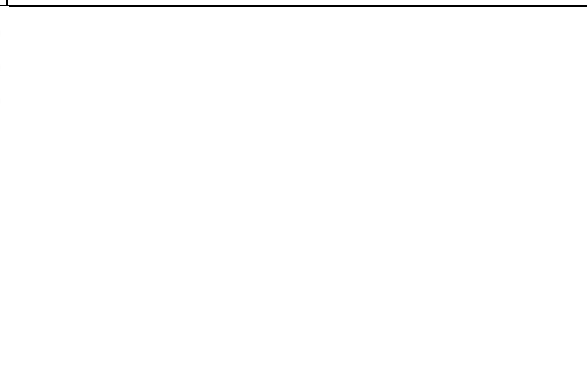
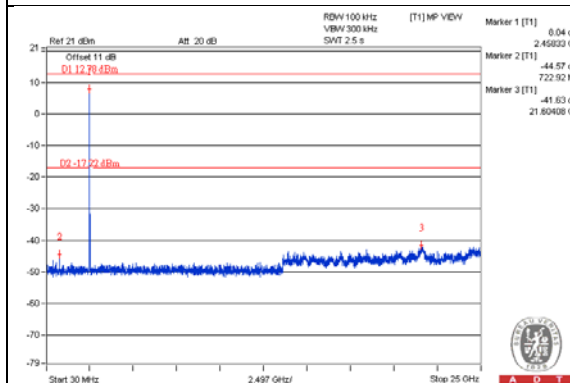
CH 1



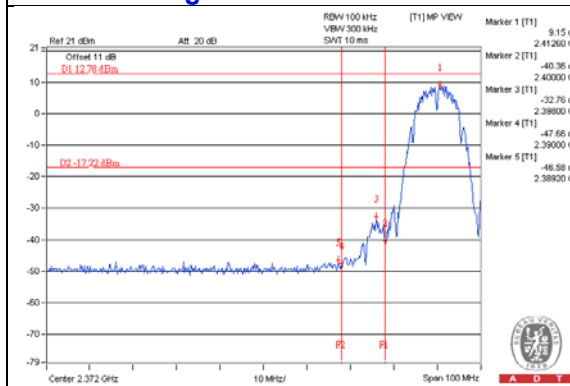
CH 6



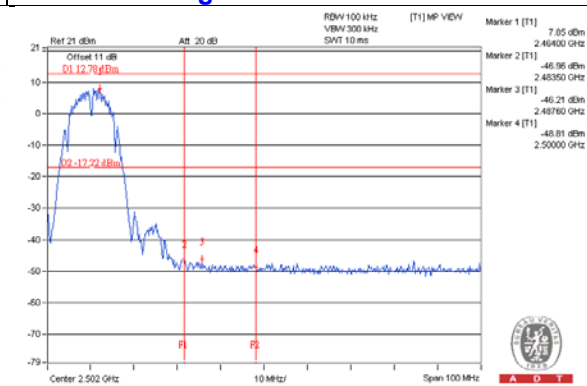
CH 11



CH 1 Band edge

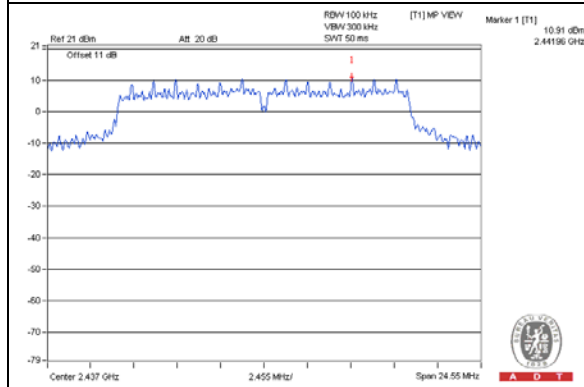


CH 11 Band edge



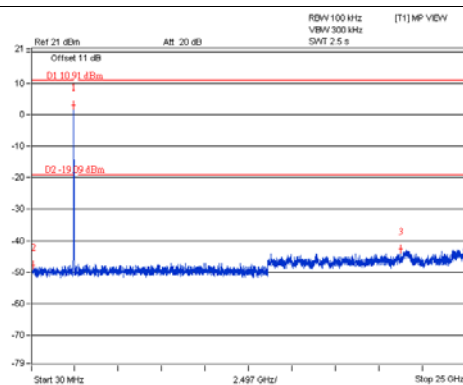
802.11g

Maximum REF

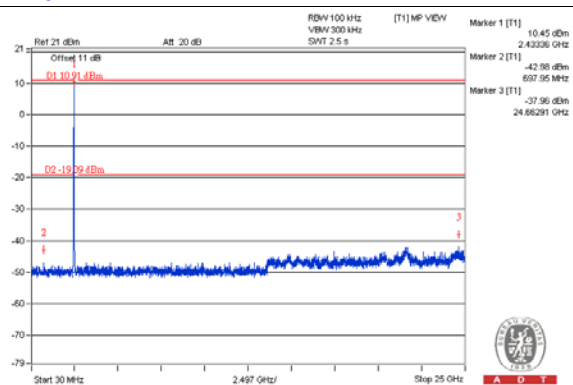


Chain 0

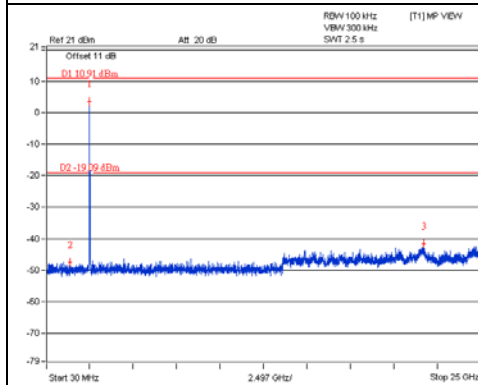
CH 1



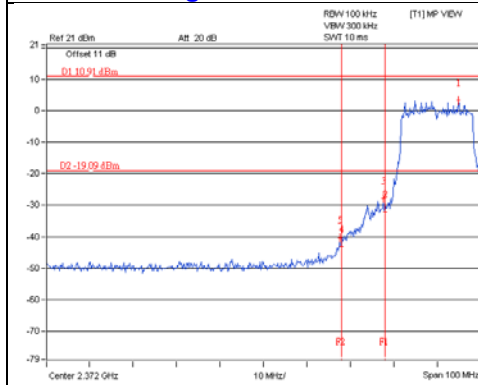
CH 6



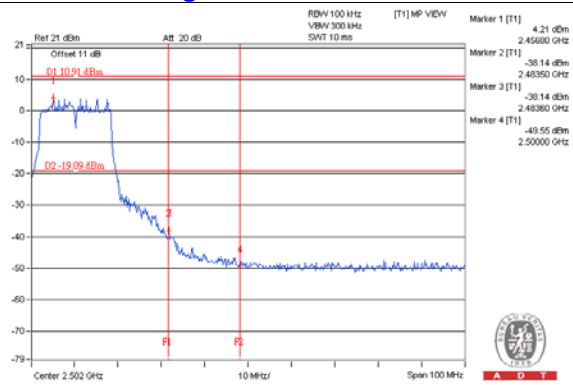
CH 11



CH 1 Band edge

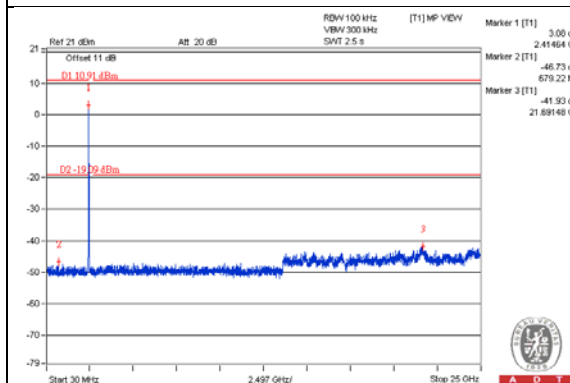


CH 11 Band edge

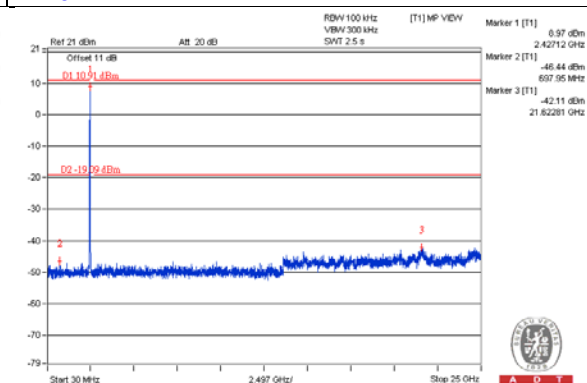


Chain 1

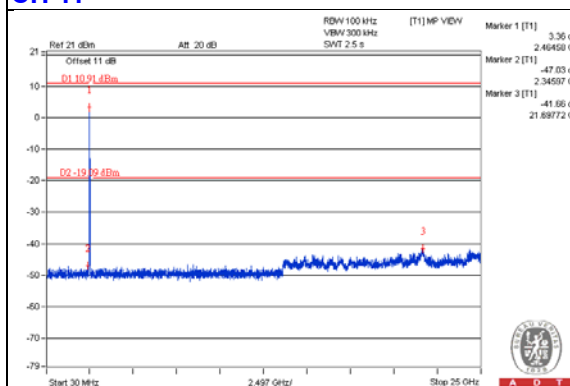
CH 1



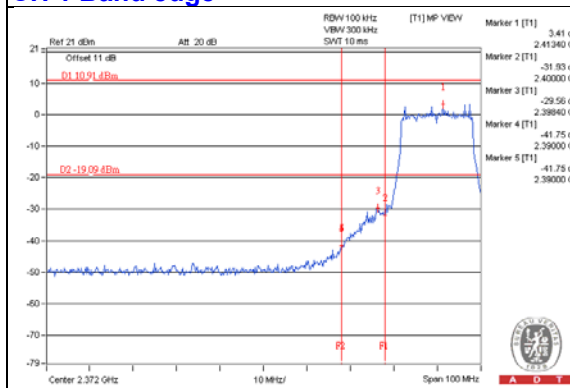
CH 6



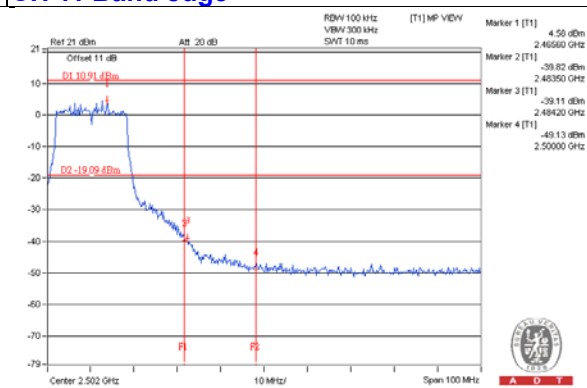
CH 11



CH 1 Band edge

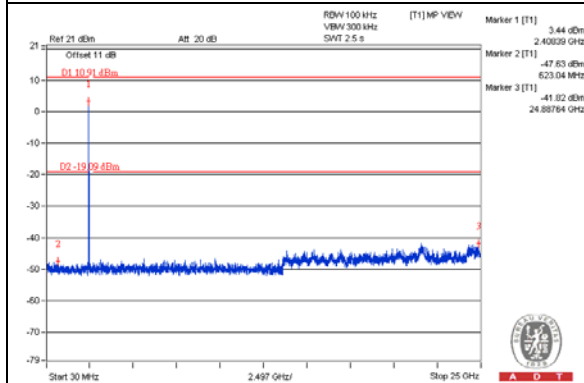


CH 11 Band edge

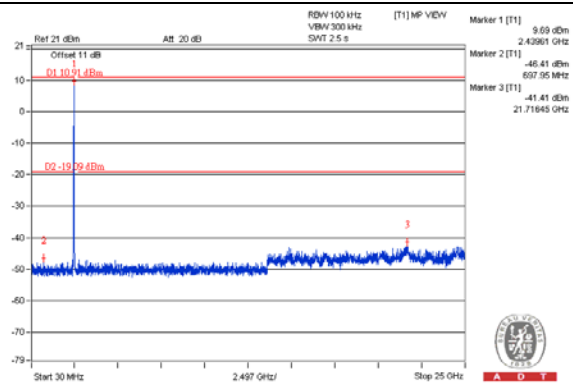


Chain 2

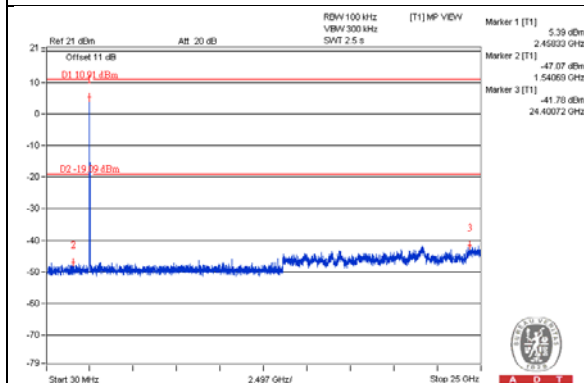
CH 1



CH 6

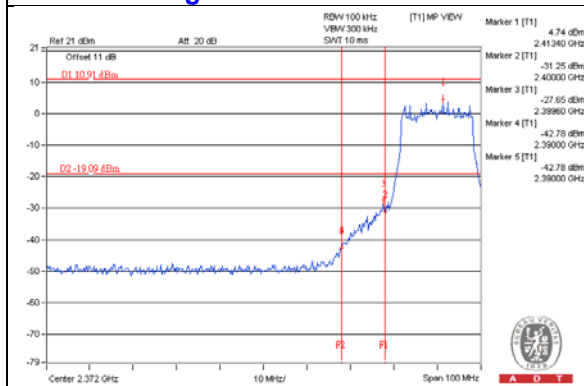


CH 11

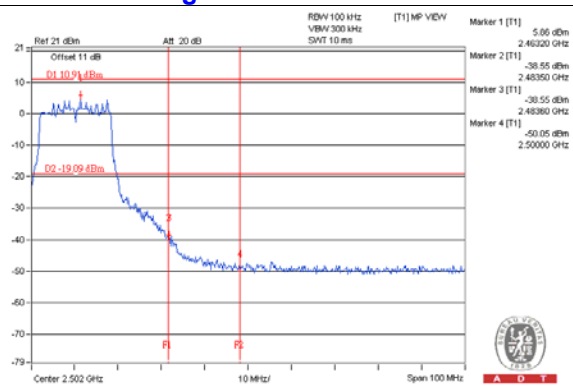


CH 11 Band edge

CH 1 Band edge

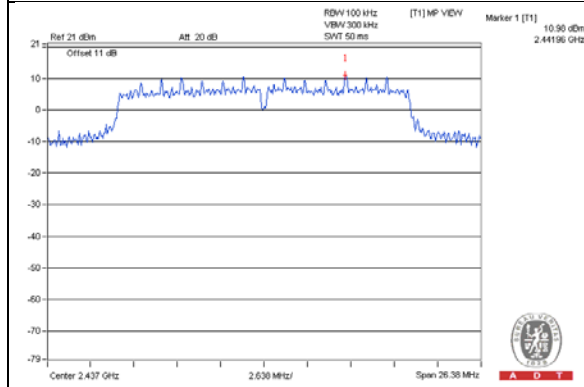


CH 11 Band edge



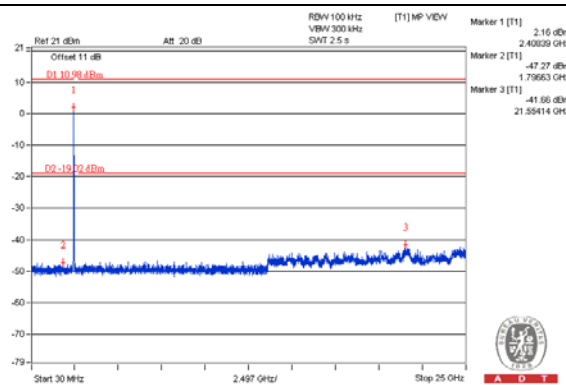
802.11n (HT20)

Maximum REF

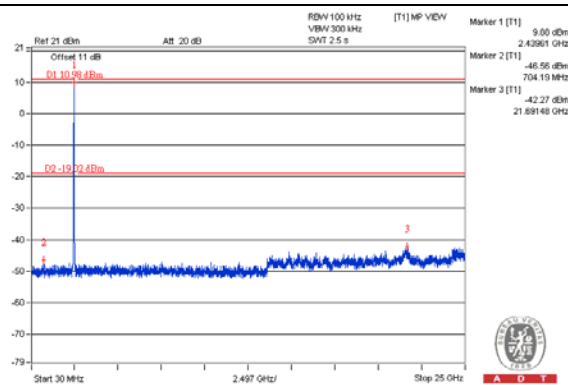


Chain 0

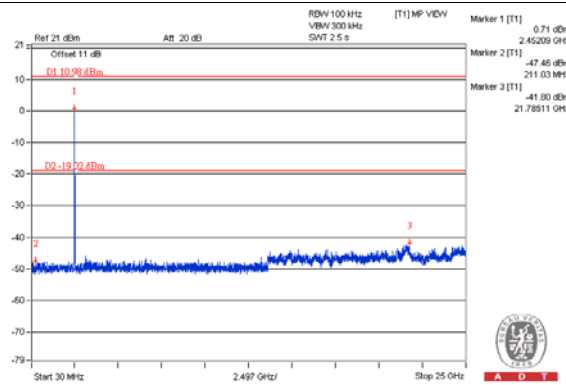
CH 1



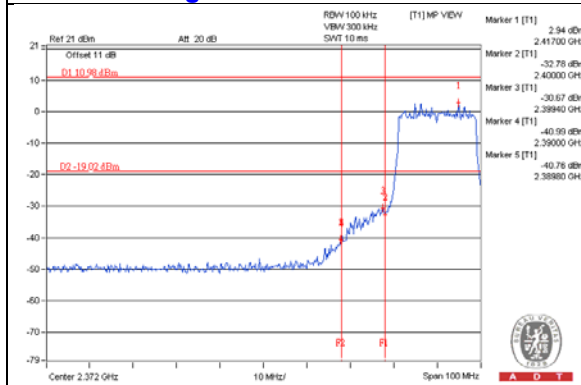
CH 6



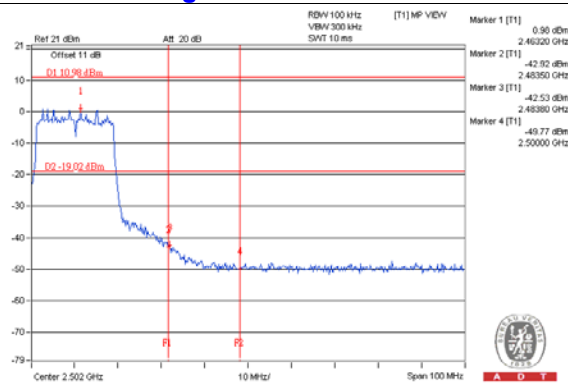
CH 11



CH 1 Band edge

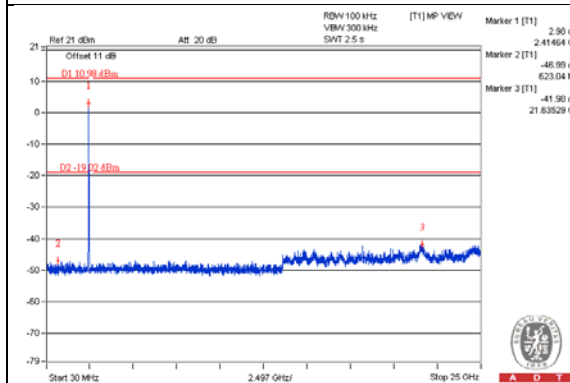


CH 11 Band edge

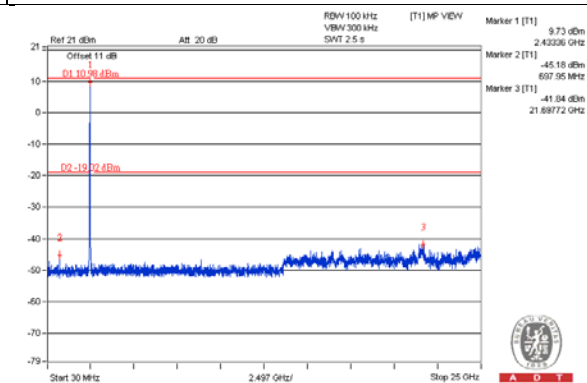


Chain 1

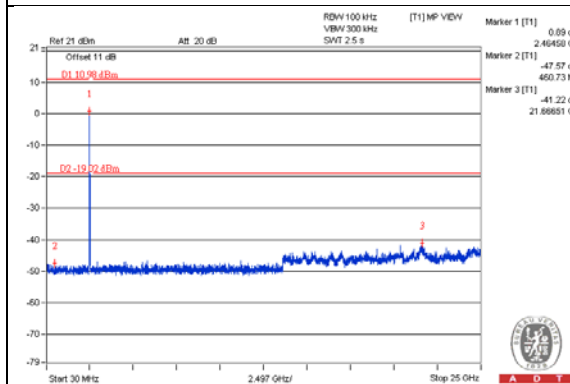
CH 1



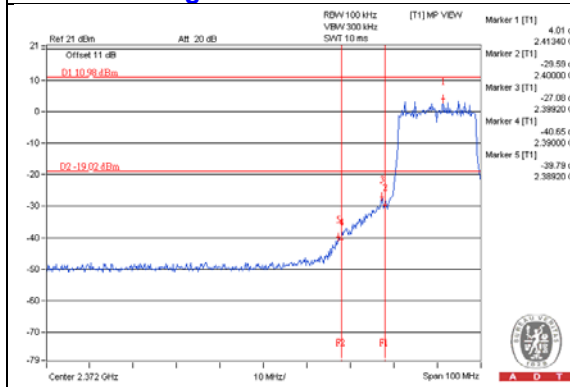
CH 6



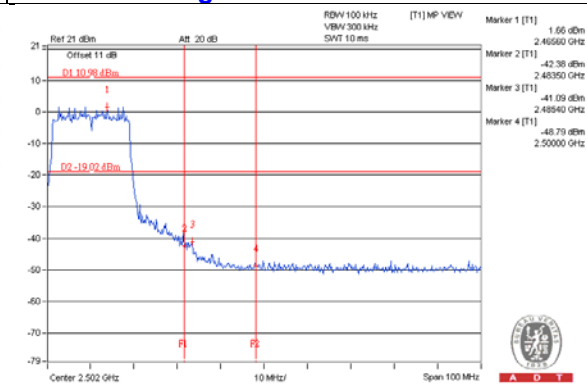
CH 11



CH 1 Band edge

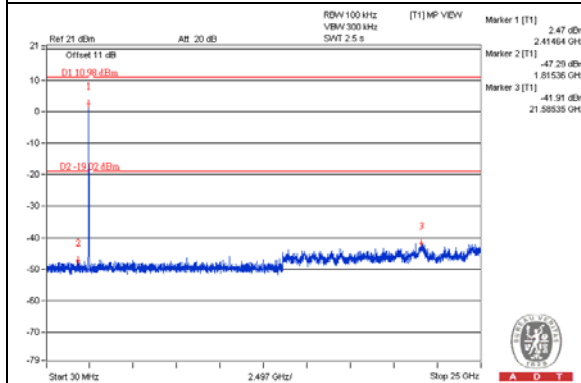


CH 11 Band edge

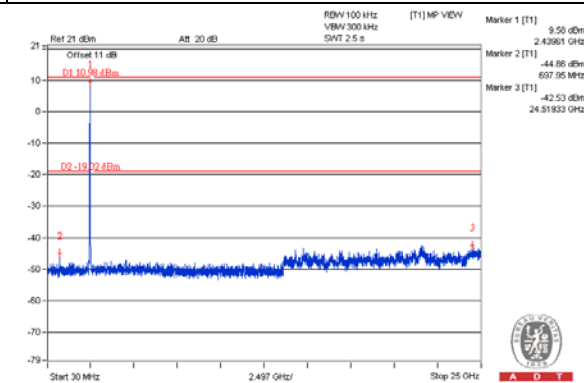


Chain 2

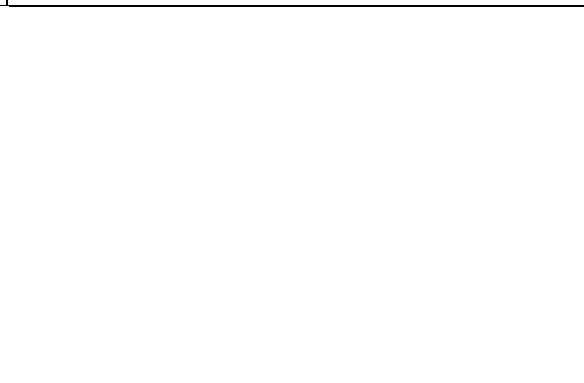
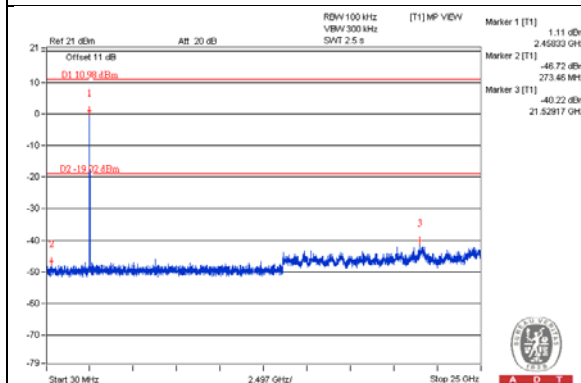
CH 1



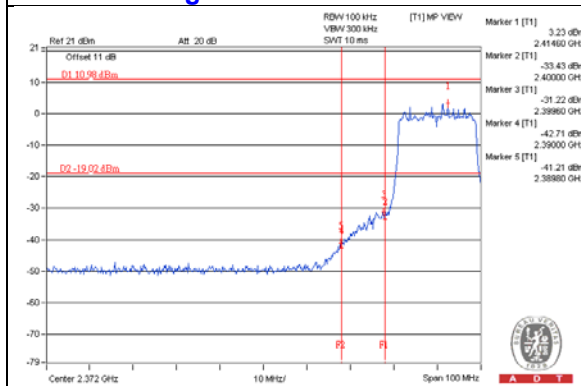
CH 6



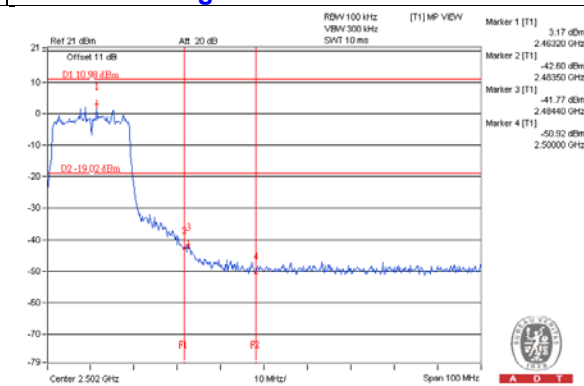
CH 11



CH 1 Band edge

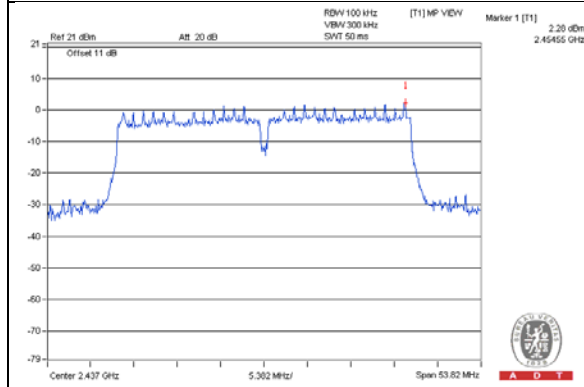


CH 11 Band edge



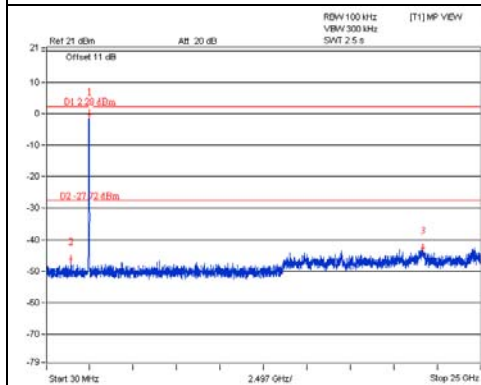
802.11n (HT40)

Maximum REF

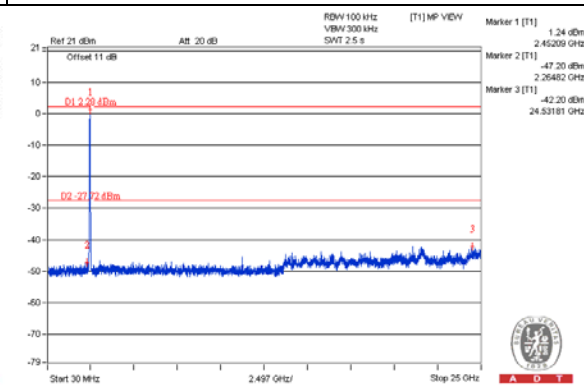


Chain 0

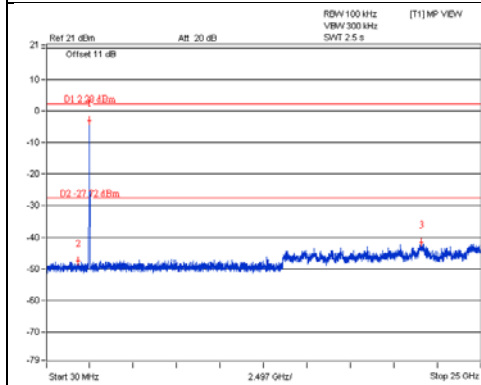
CH 3



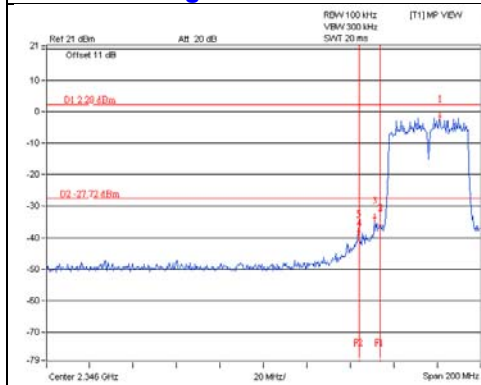
CH 6



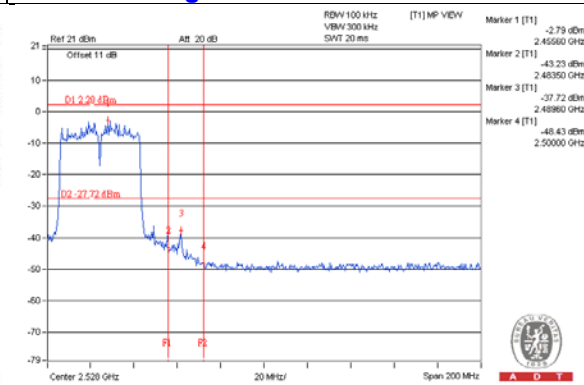
CH 9



CH 3 Band edge

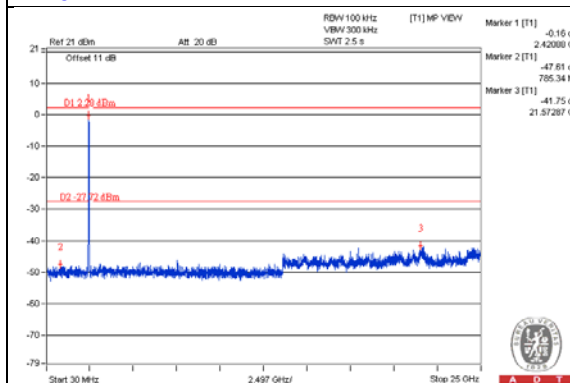


CH 9 Band edge

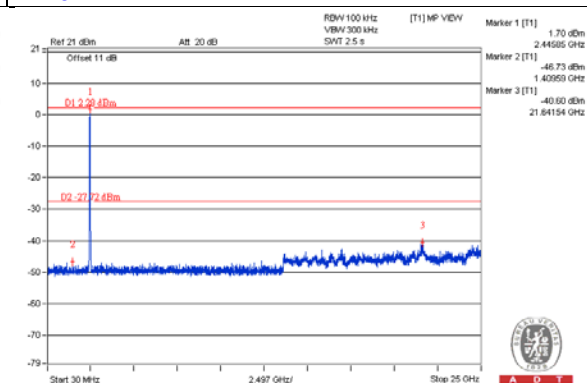


Chain 1

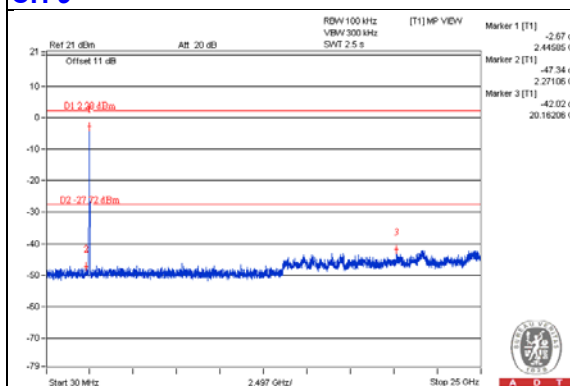
CH 3



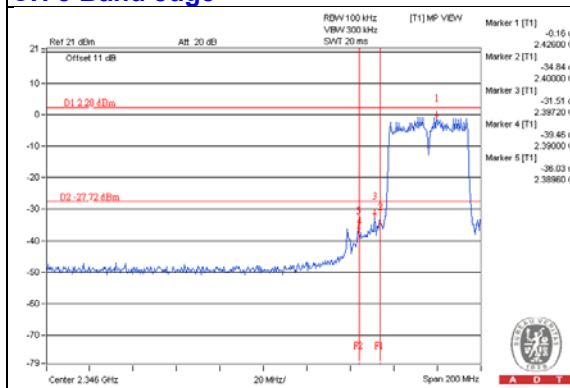
CH 6



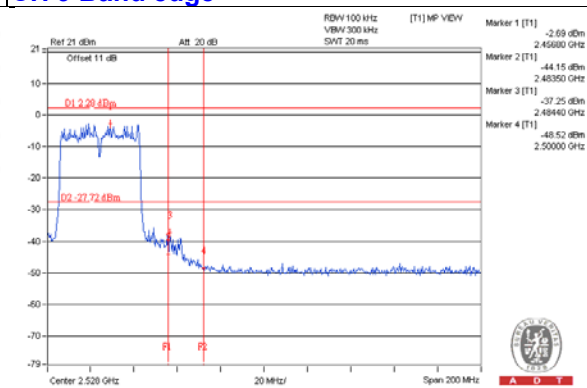
CH 9



CH 3 Band edge

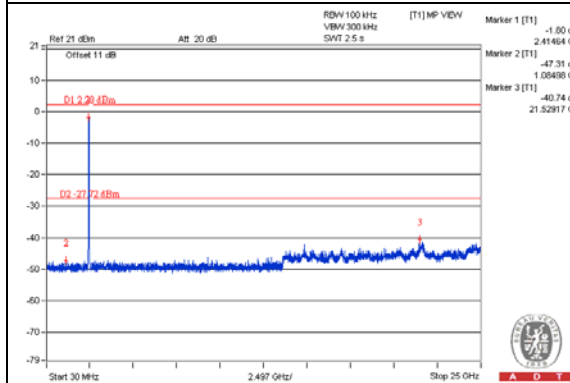


CH 9 Band edge

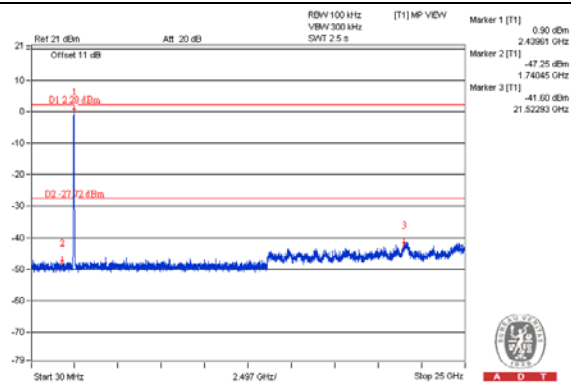


Chain 2

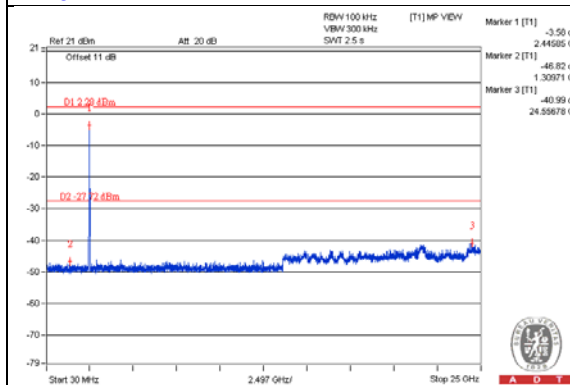
CH 3



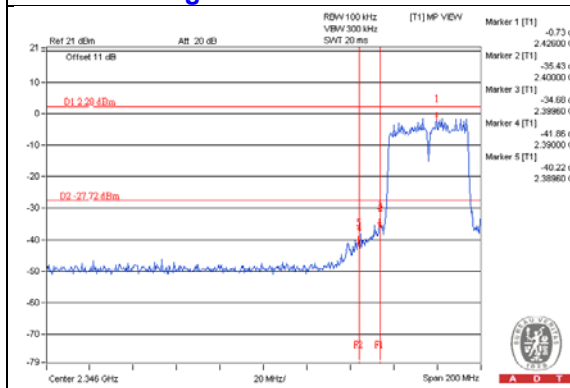
CH 6



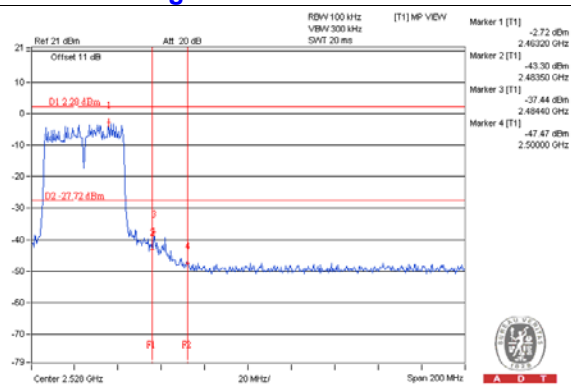
CH 9



CH 3 Band edge



CH 9 Band edge



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

--- END ---